

Phenols

Properties :-

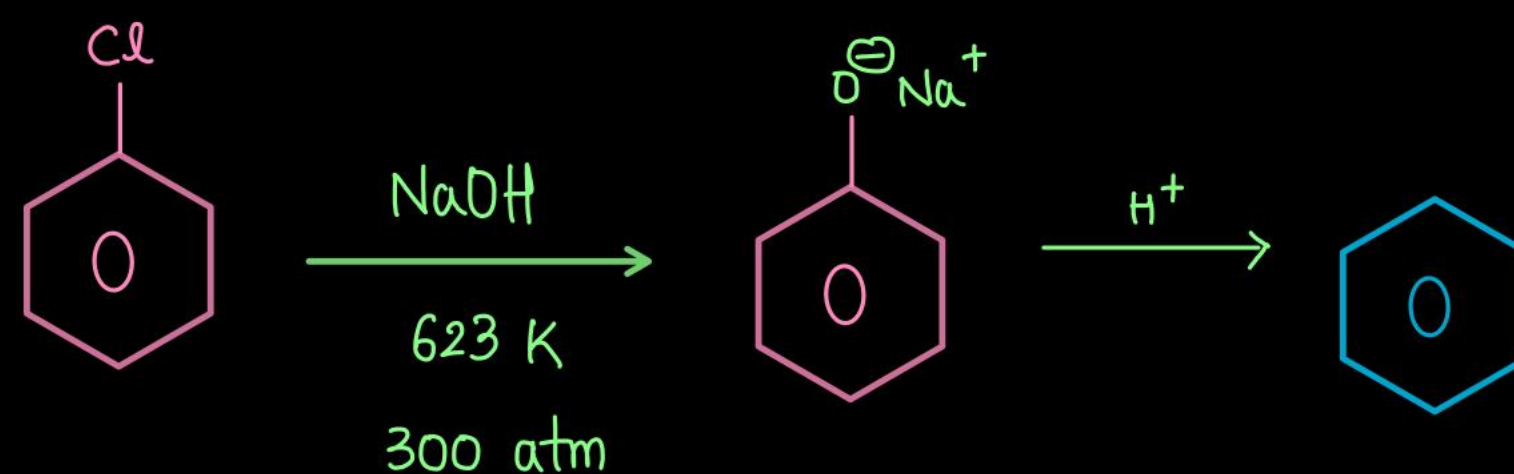
- 1) Acidic Nature▶
- 2) Esterification▶
 - * Aspirin▶
- 3) Kolbe schmidt Rxn▶ 7
- 4) Reimer - Tiemann rxn▶
 - * Abnormal▶
 - * With CCl_4 ▶
- 5) EAS▶
 - * Nitration▶
 - * Halogenation▶
 - * Sulphonation▶
 - * Ipso substitution▶
- 6) Rxn with Zn▶ 19
- 7) Oxidation▶ 20

MDP

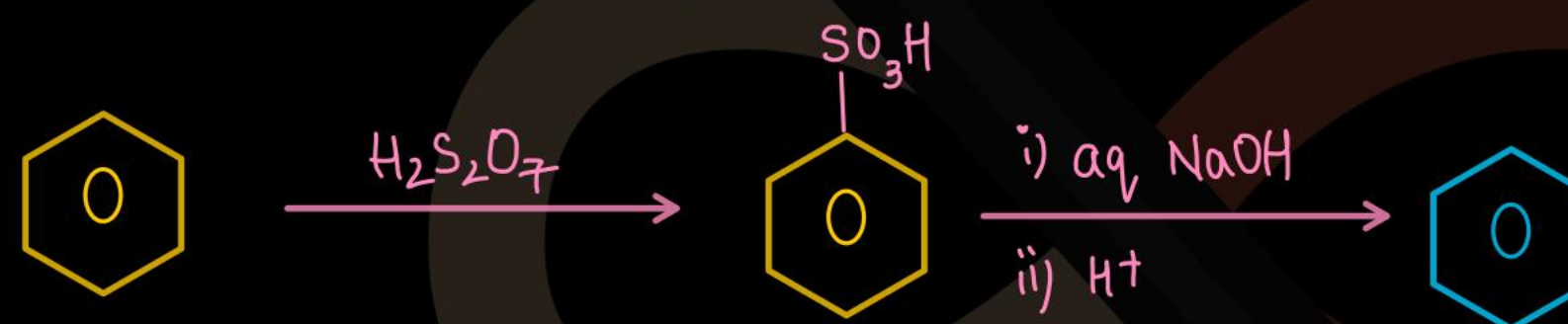
- 1) Dow's Process▶
- 2) from Benzene▶
- 3) from Amines▶
- 4) from Cumene▶ 3

(Cumene hydroperoxide)
re-arrangement.

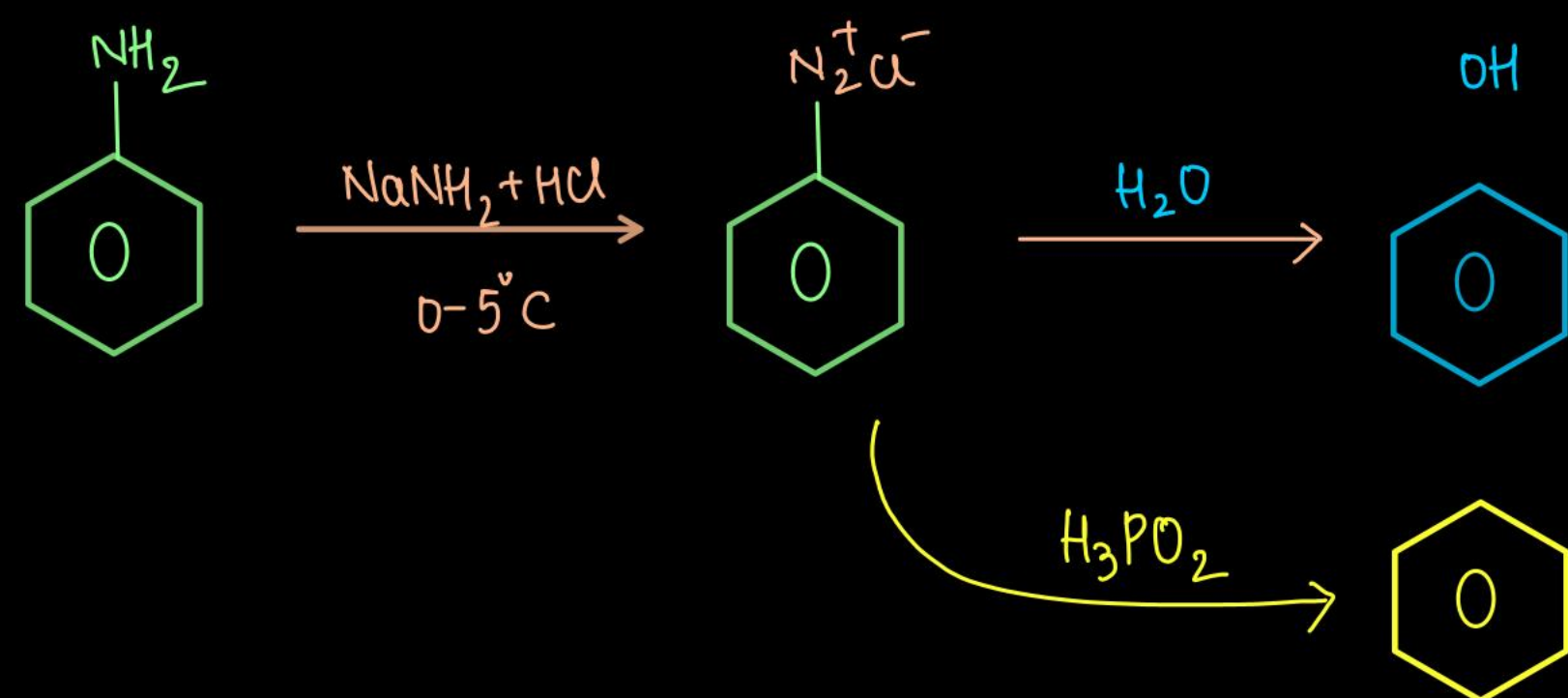
1) Dow's process



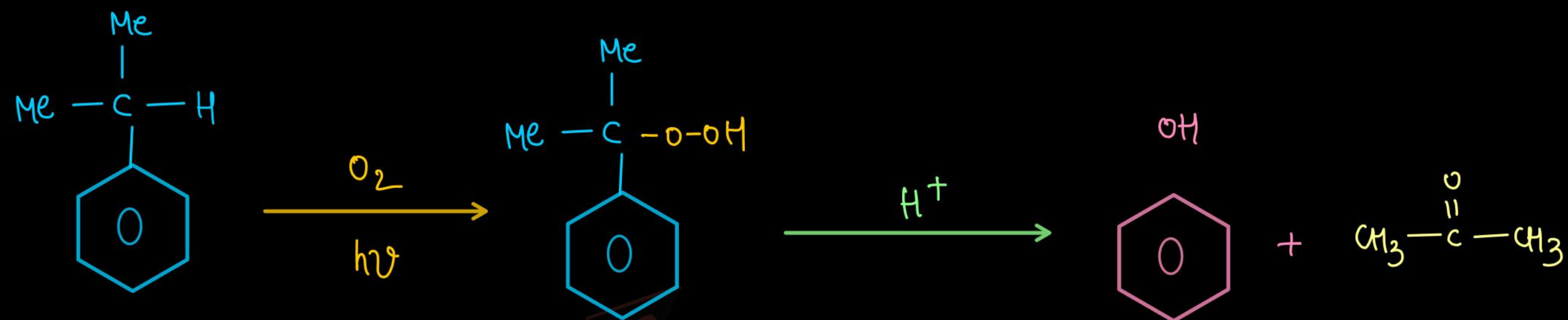
2) from Benzene :-



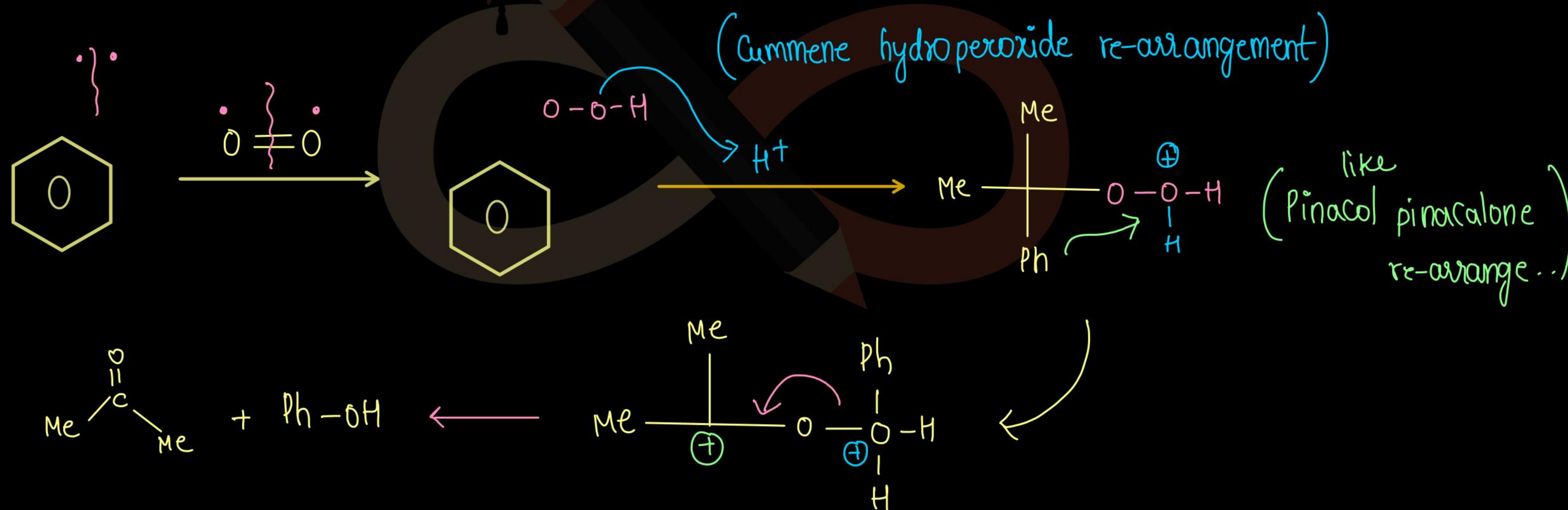
3) from Aniline

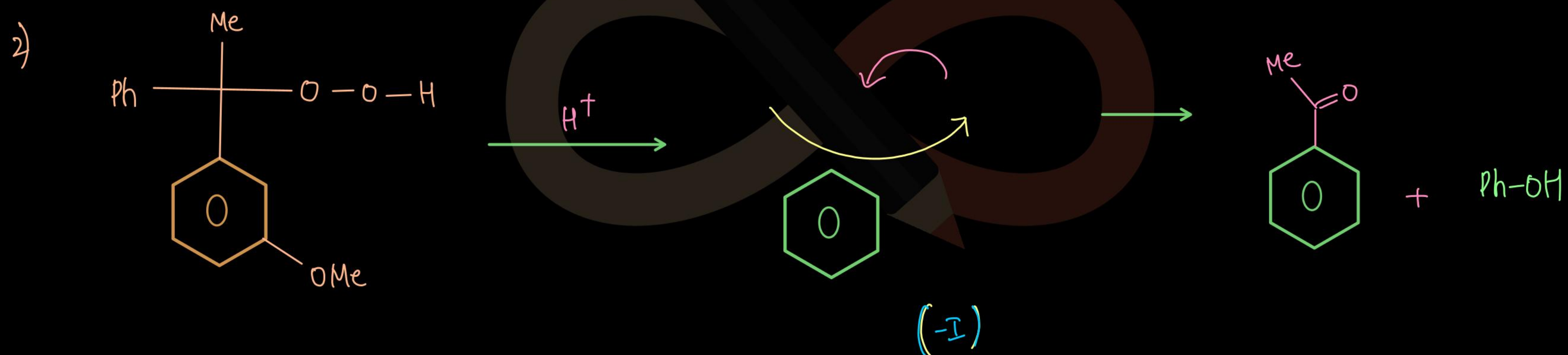
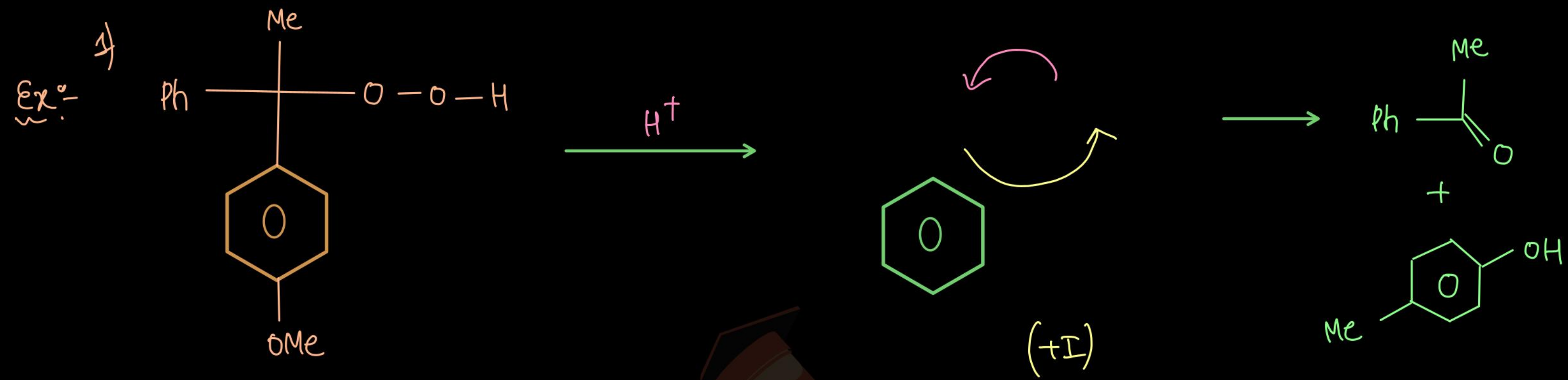


4) from Cumene :



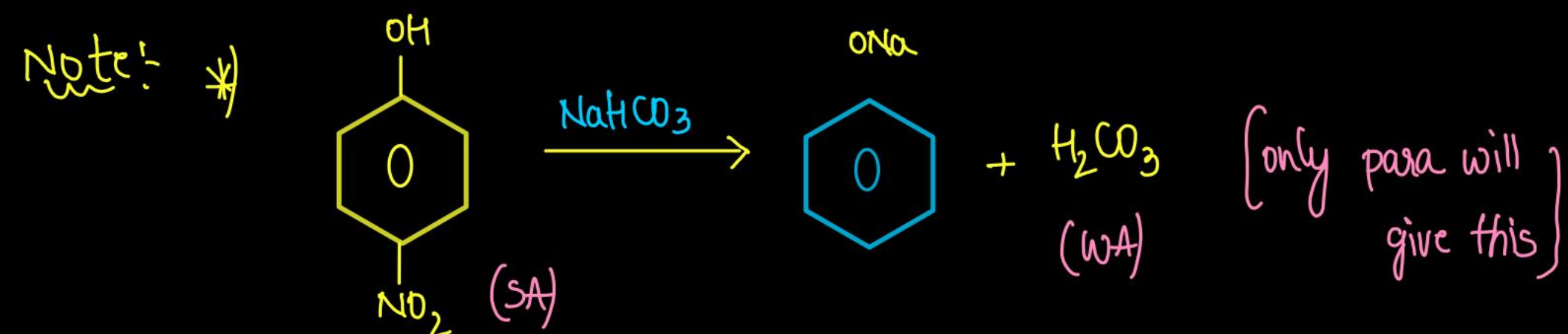
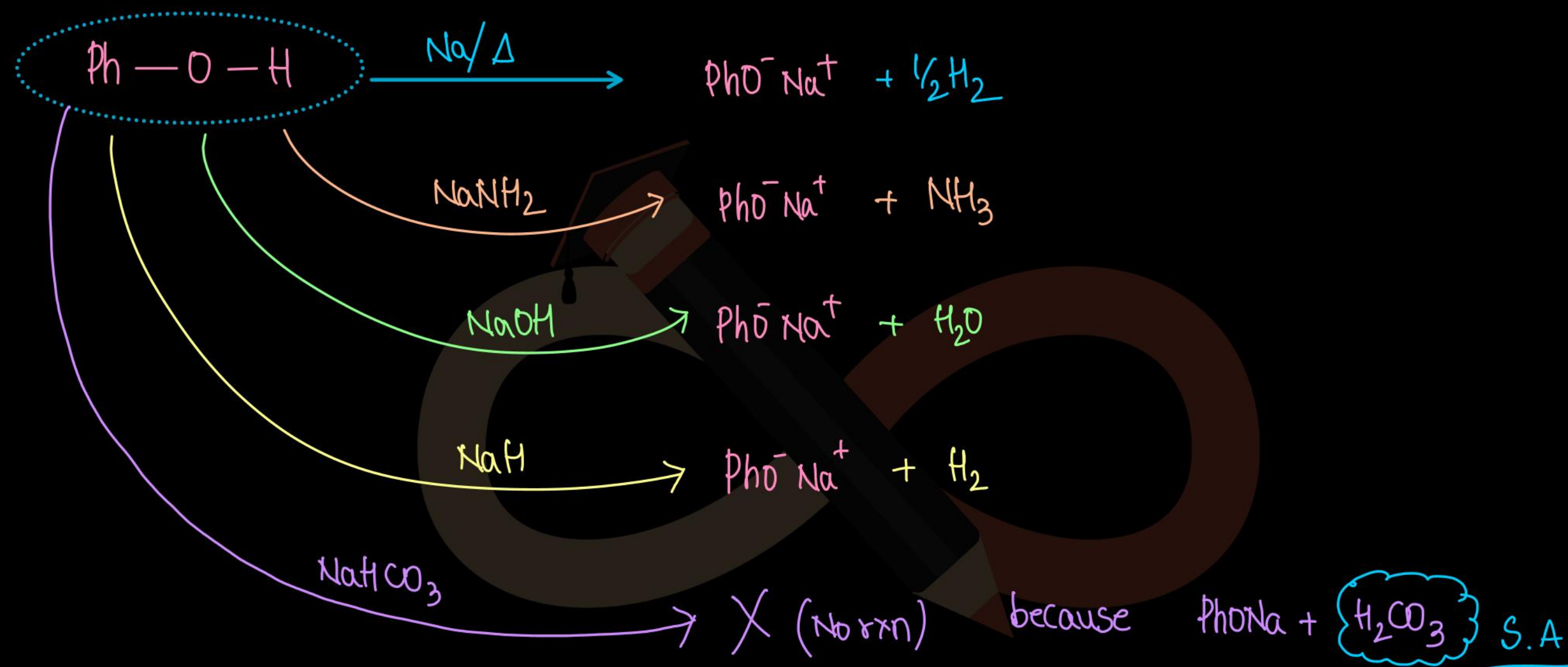
Mech :-



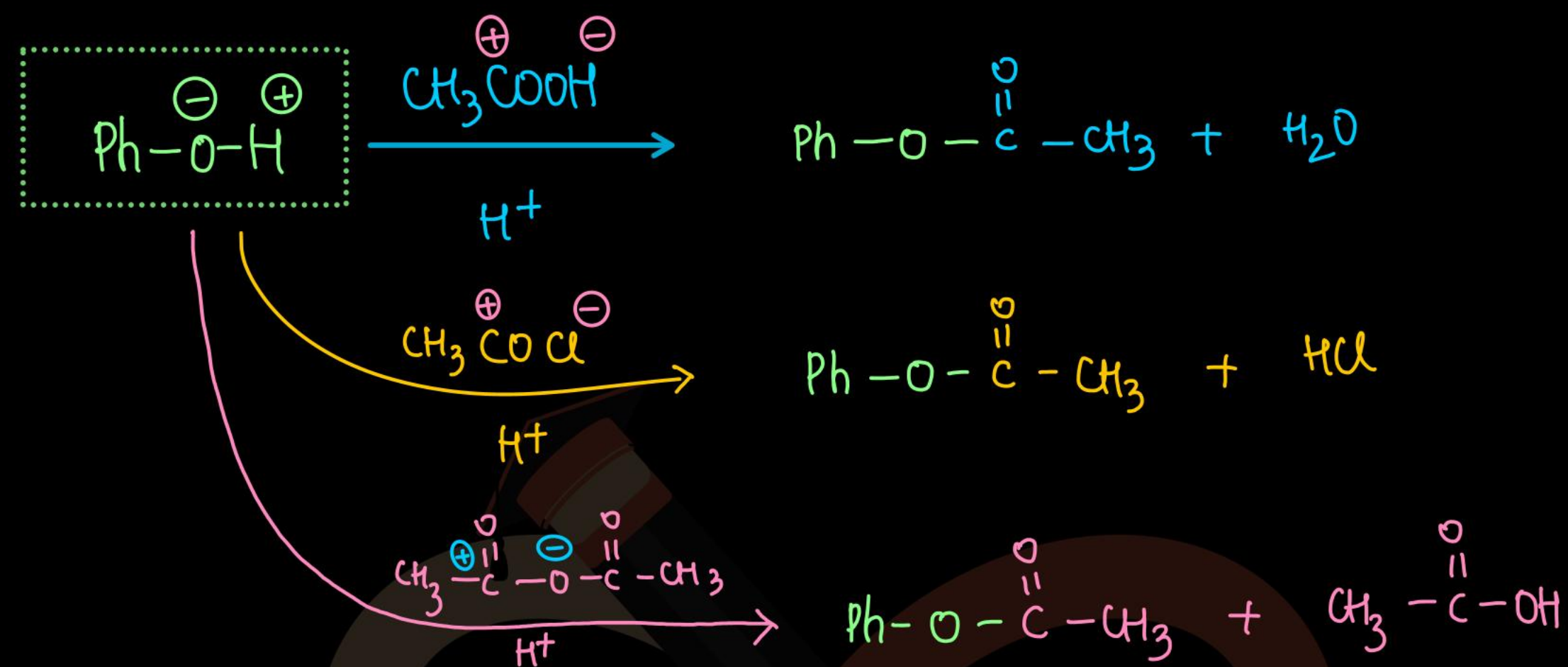


Properties :-

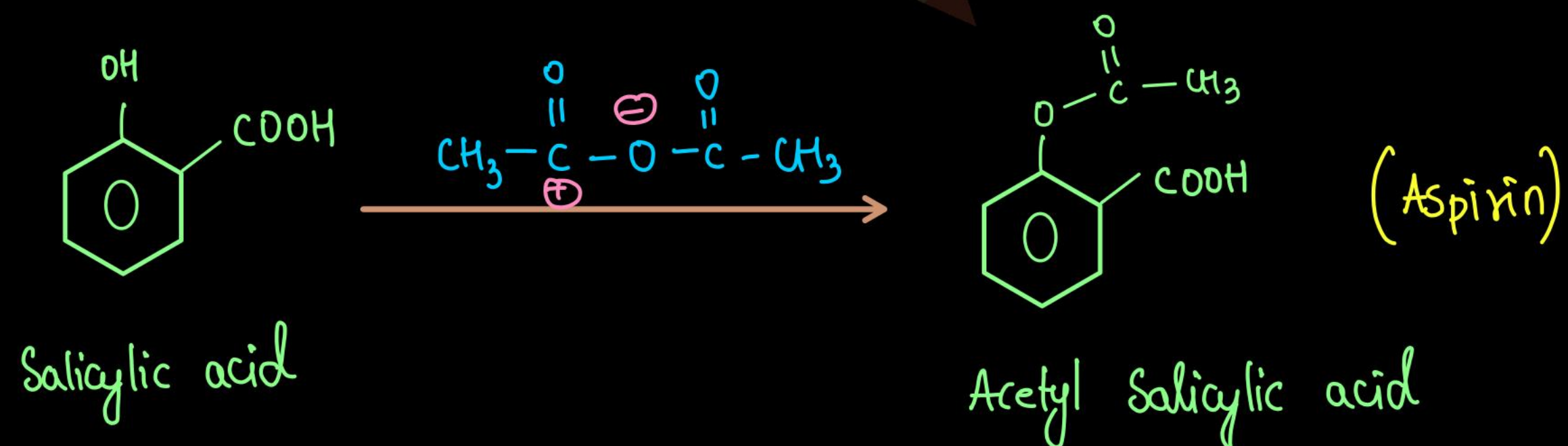
1) Acidic Nature:



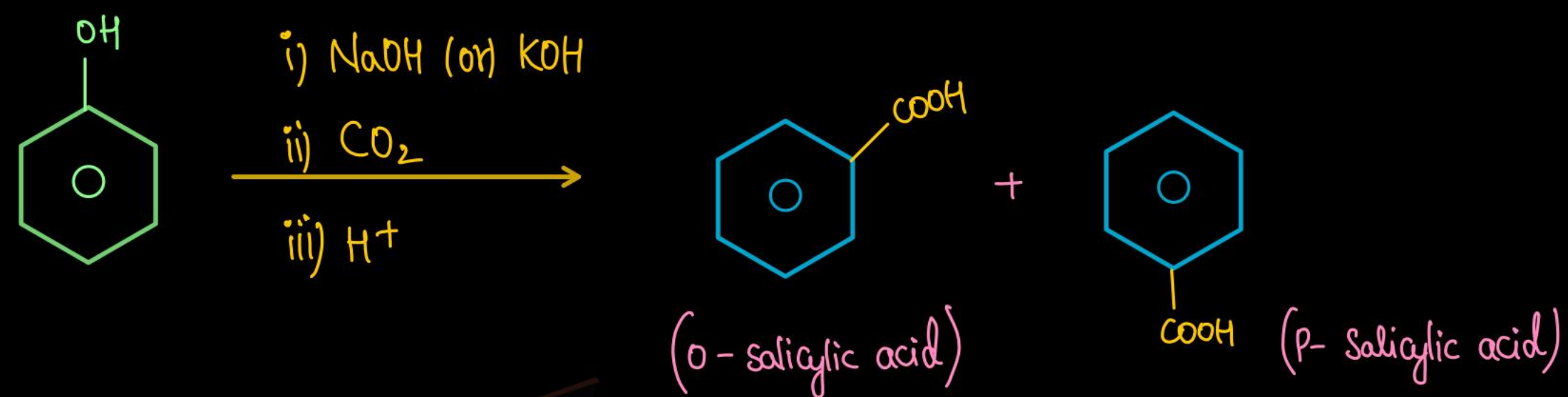
2) Esterification



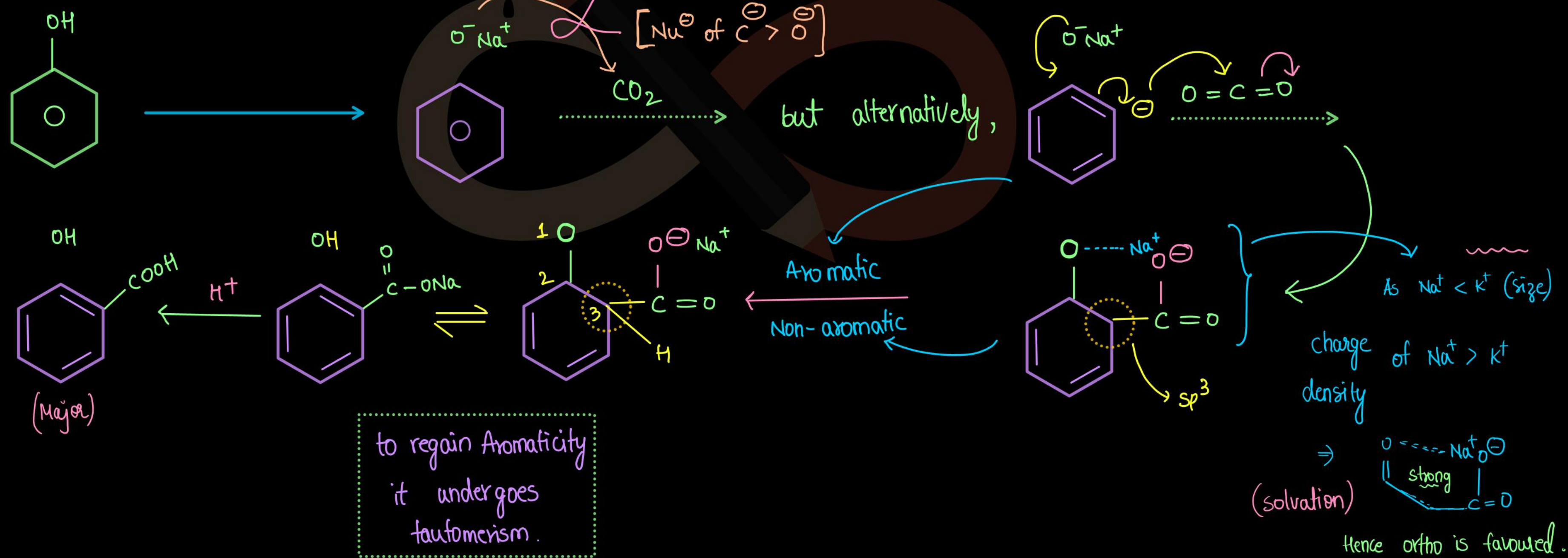
Aspirin formation :-



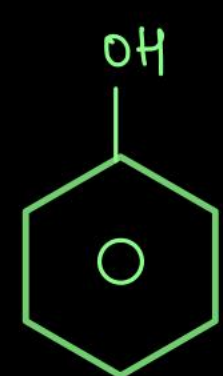
3) Kolbe Schmidt Rxn :



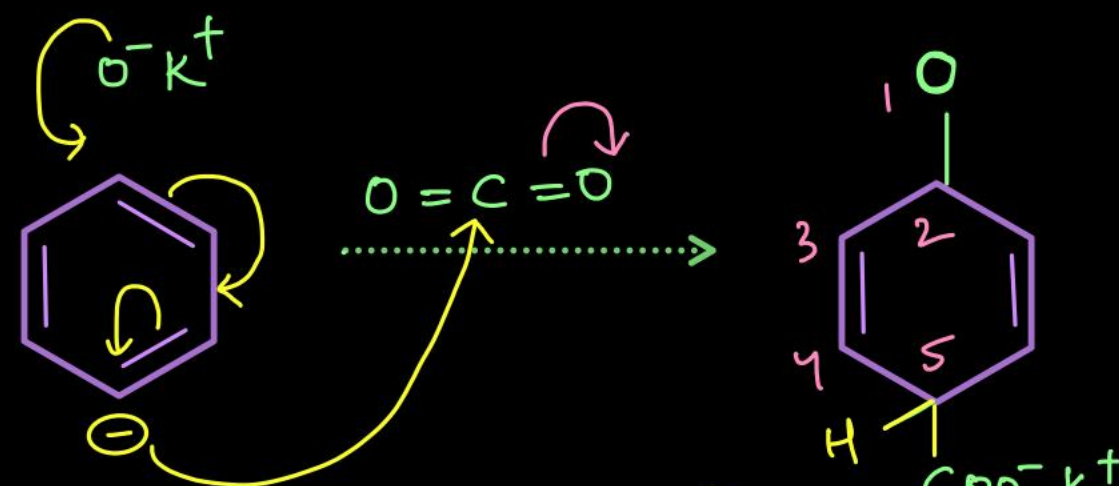
Mech :-



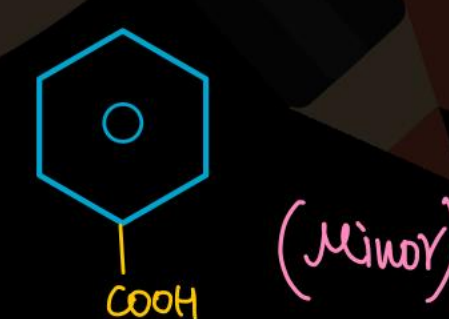
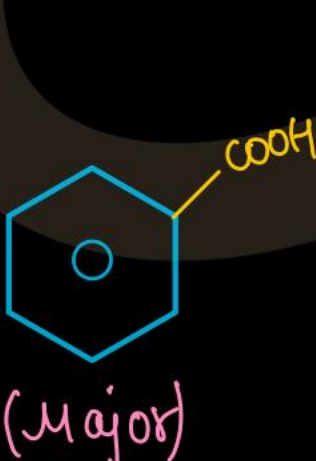
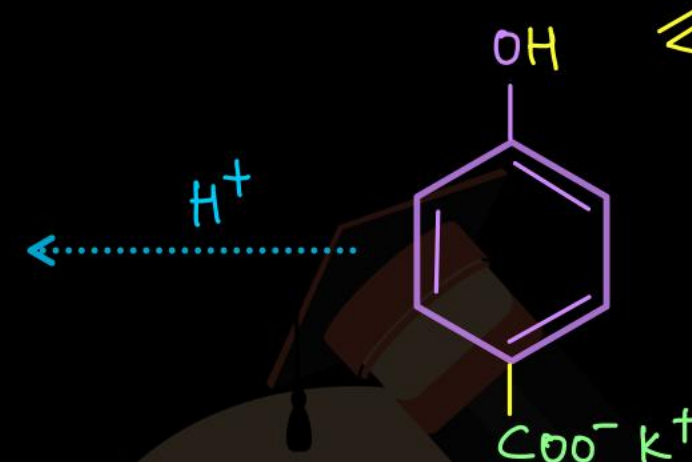
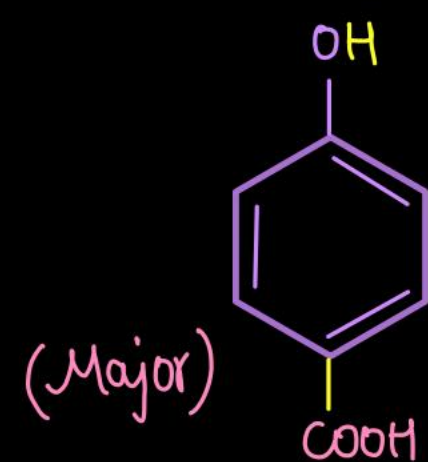
ii) KOH



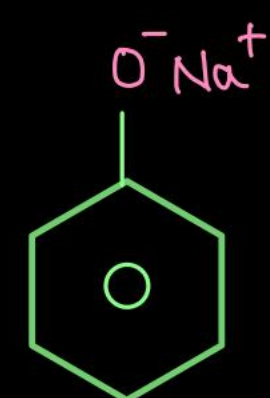
KOH



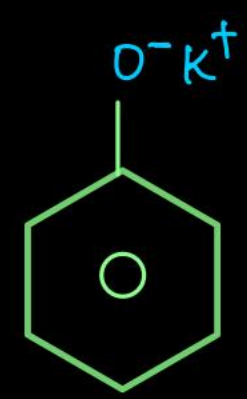
As $\text{Na}^+ < \text{K}^+$ (size)
there will be repulsions
in ortho position



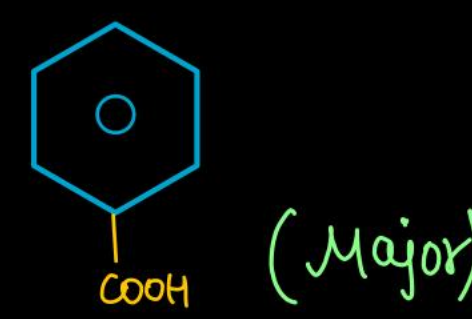
Note:-



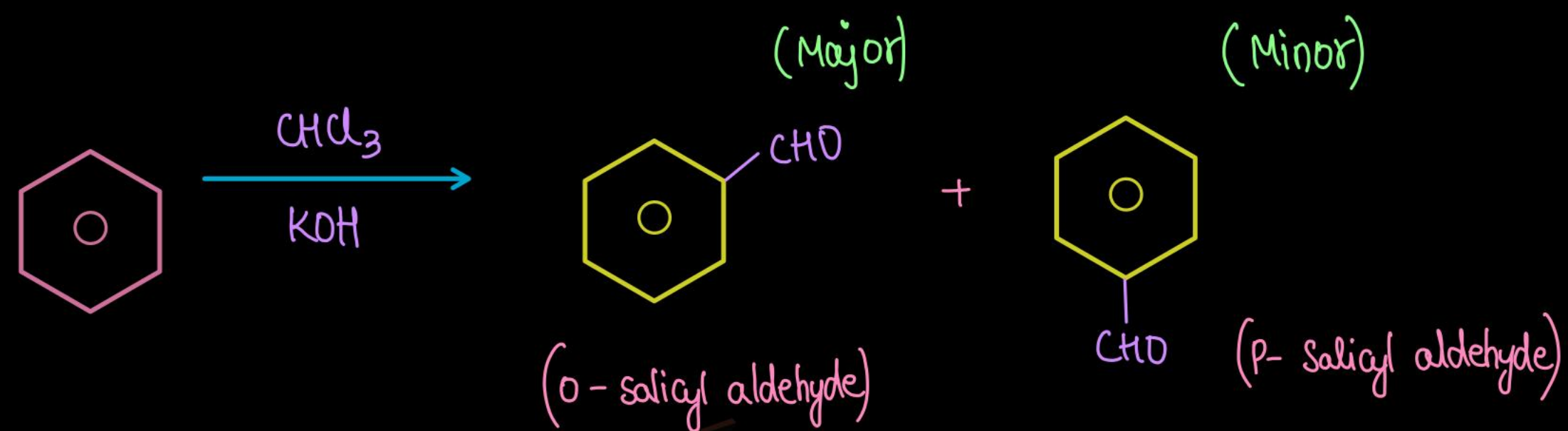
i) CO_2
ii) H^+



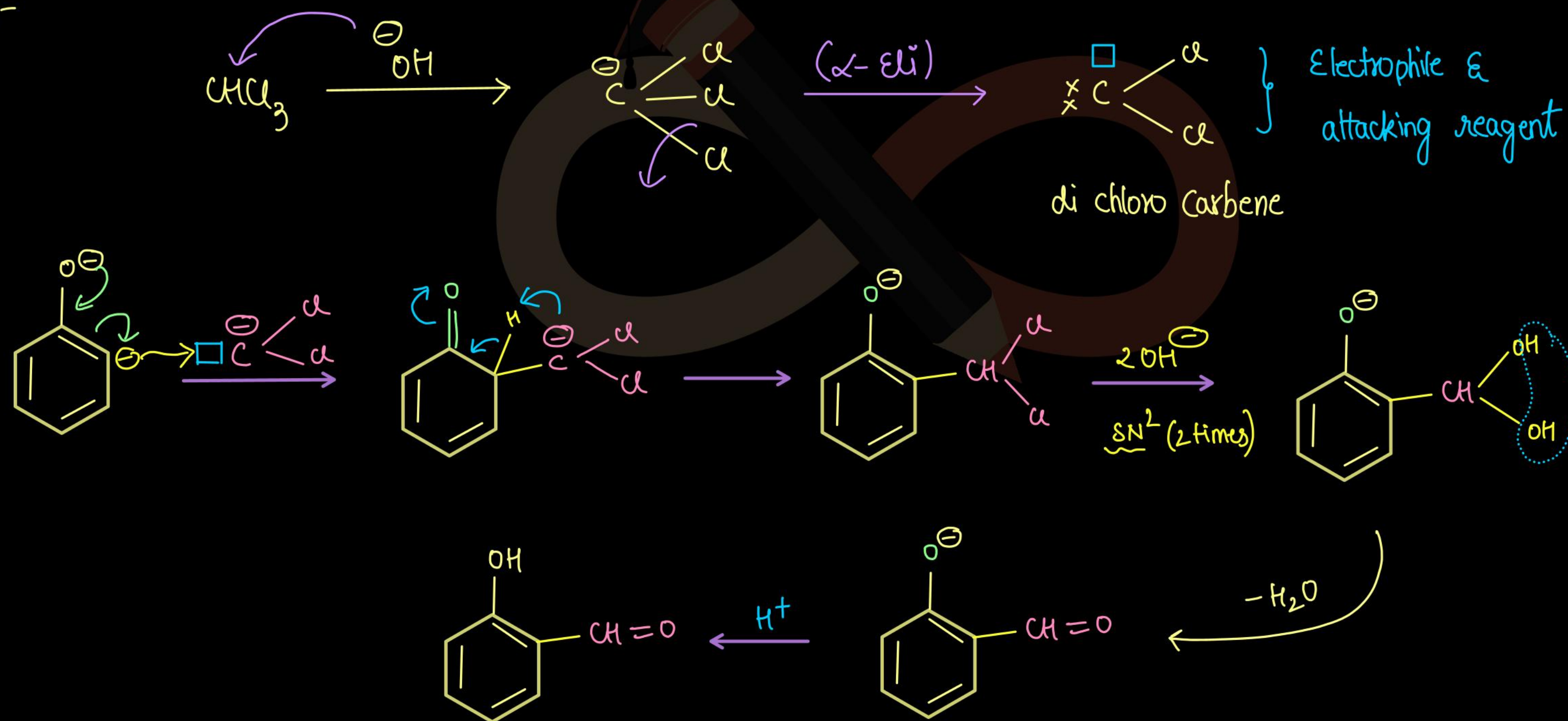
i) CO_2
ii) H^+



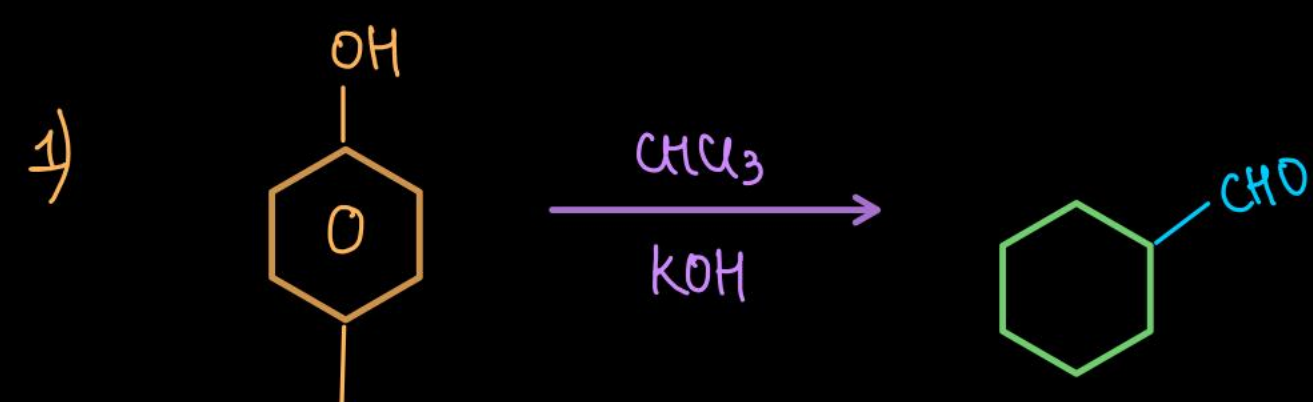
④ Riemer - Tiemann Rxn



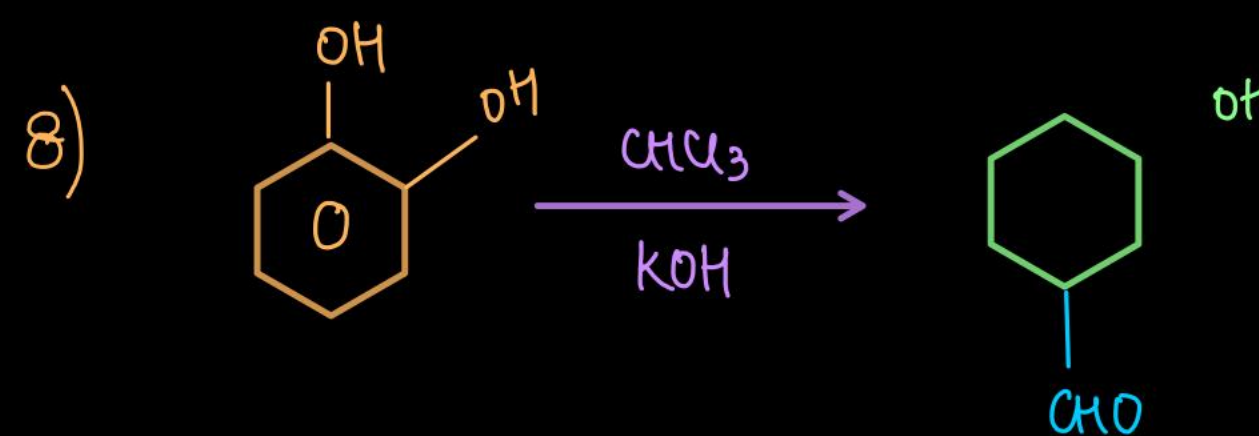
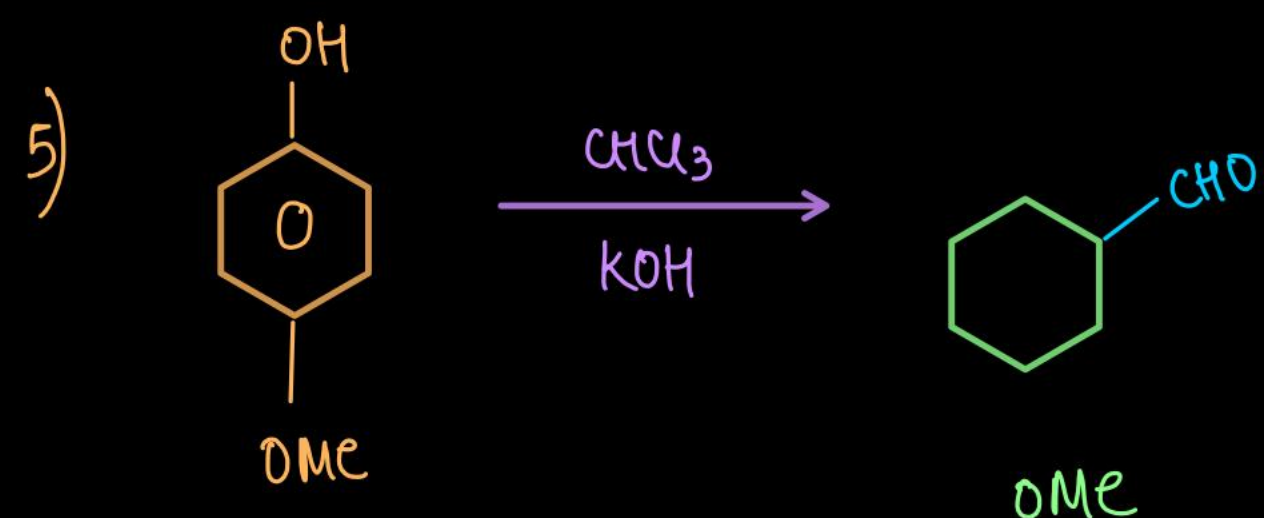
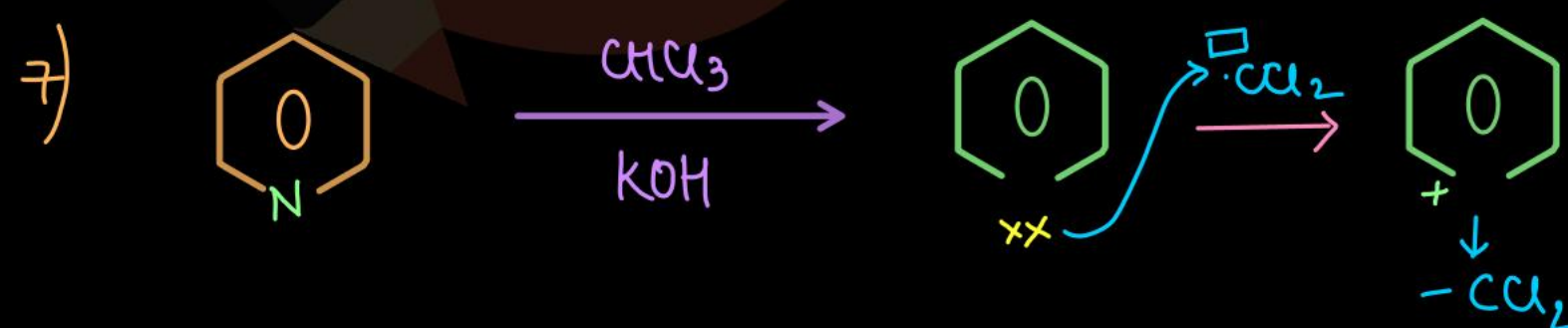
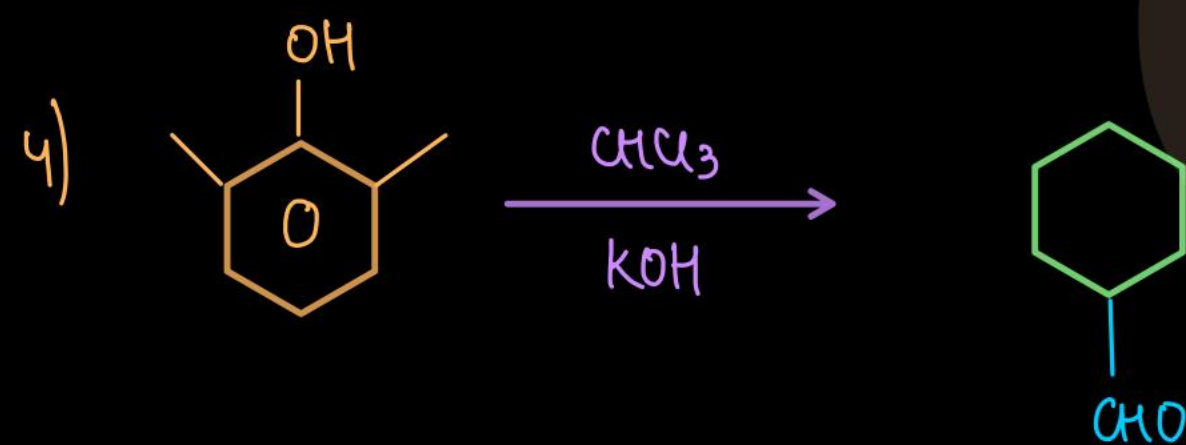
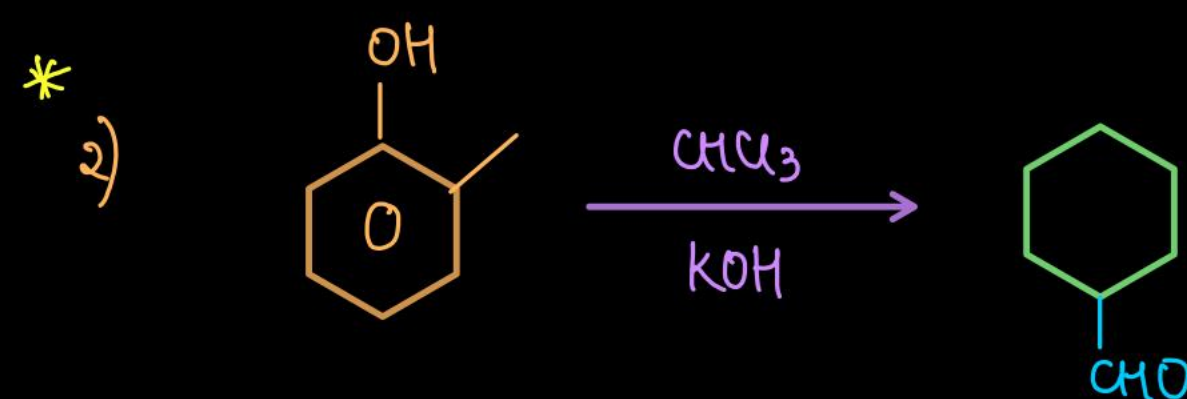
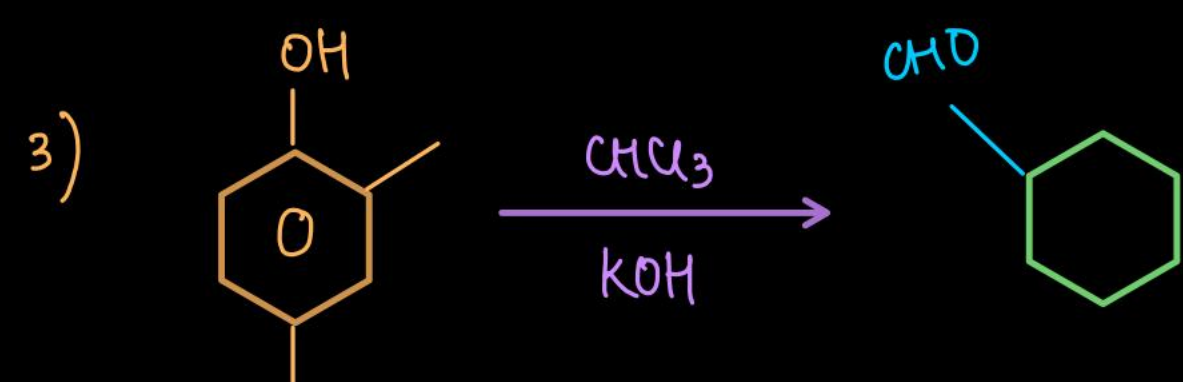
Mech :-



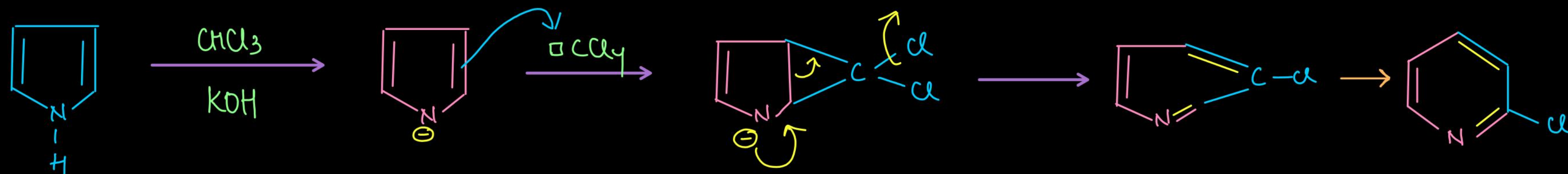
Q) Find the Major product ?



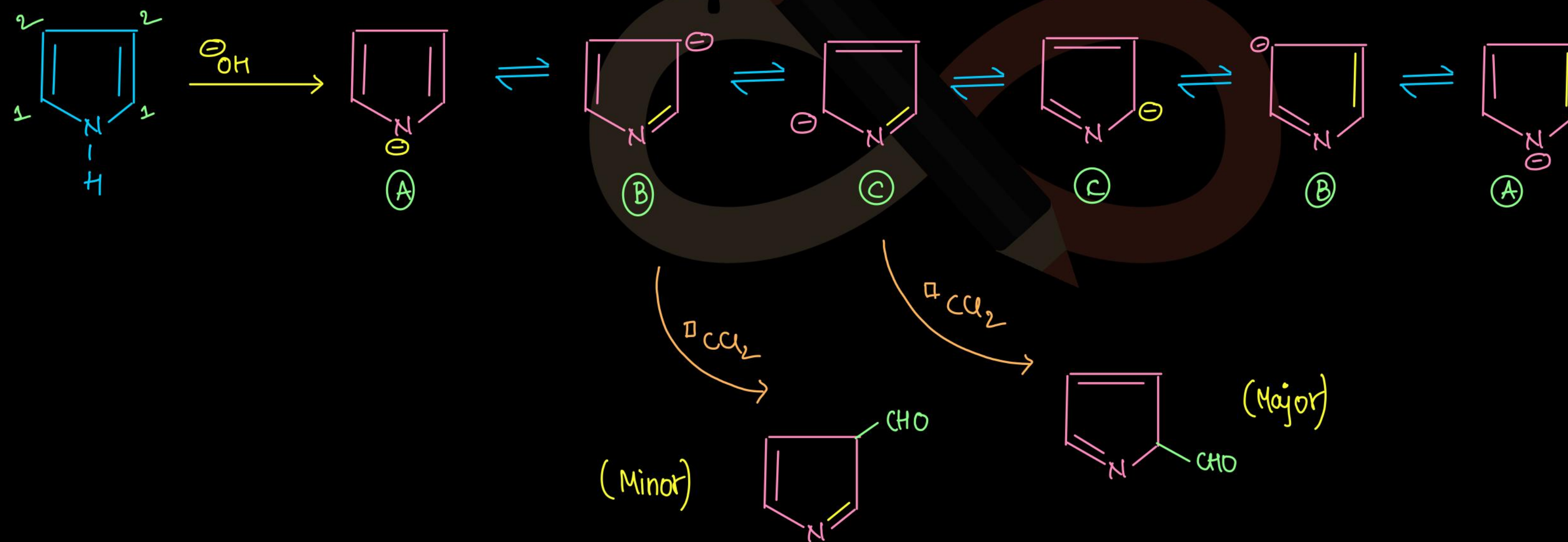
(If atleast one ortho is booked then para is always Major)

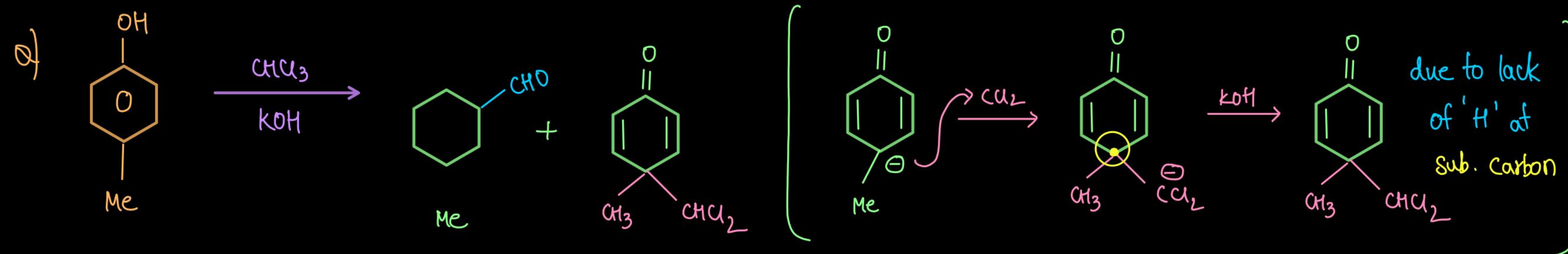
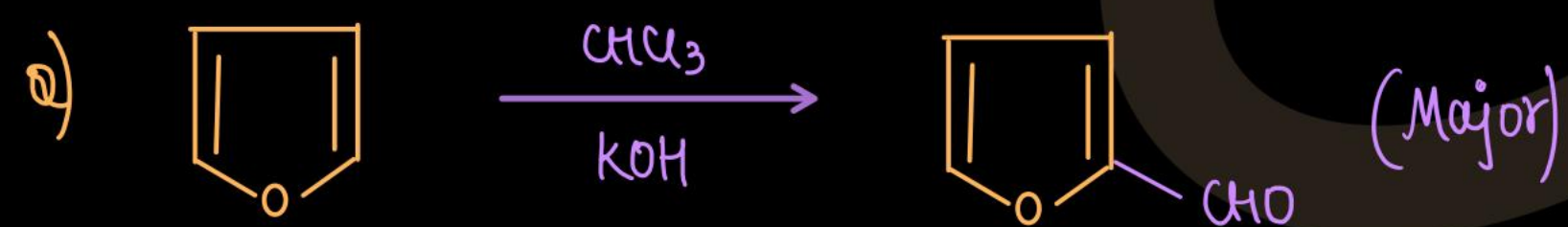
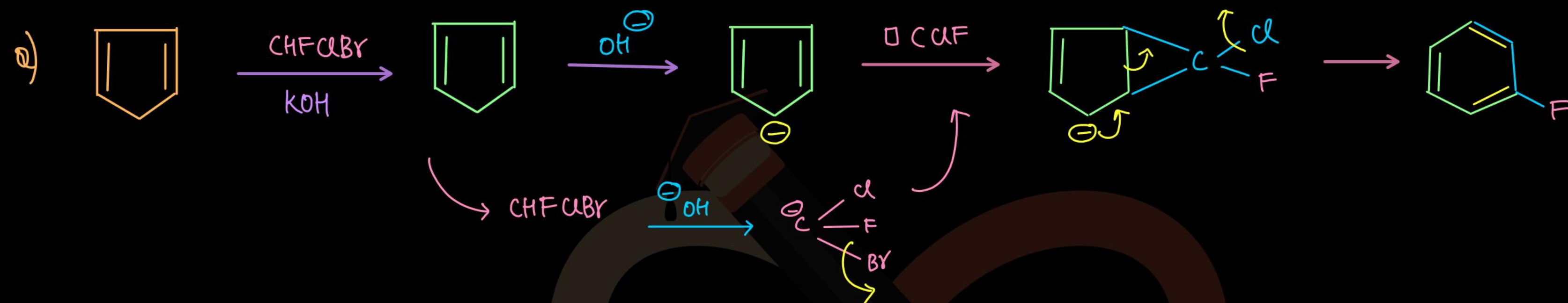
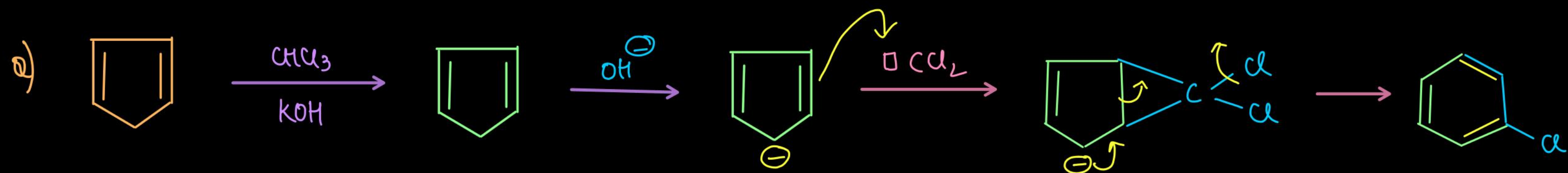


* Abnormal RTR

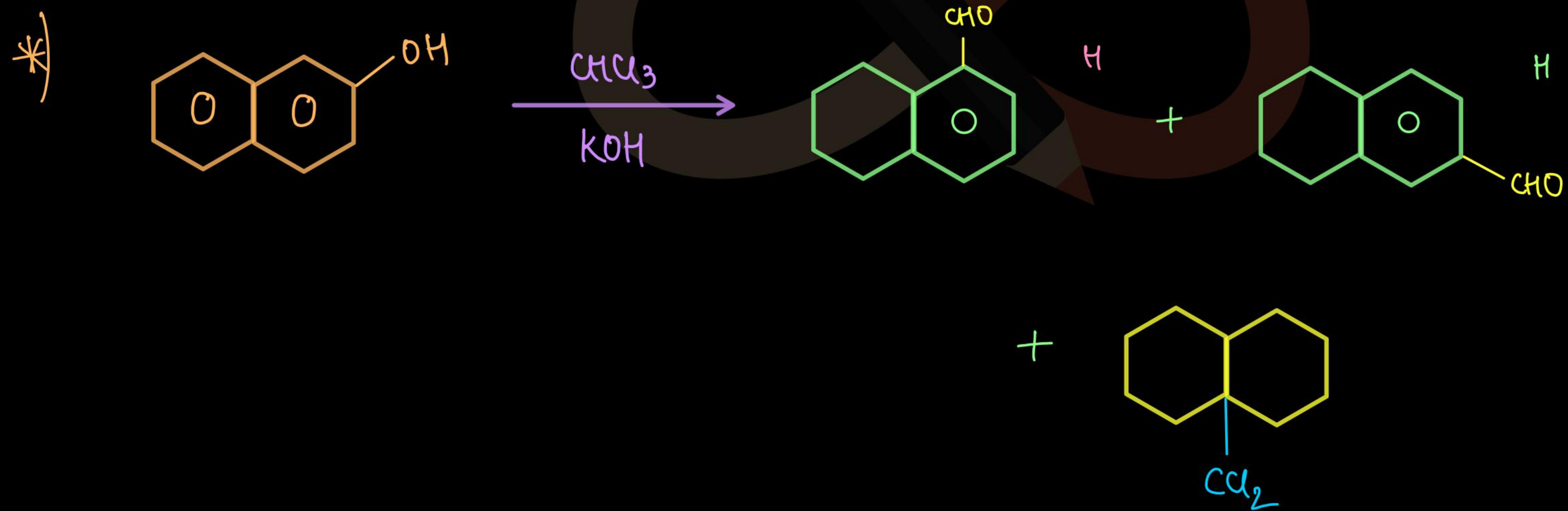
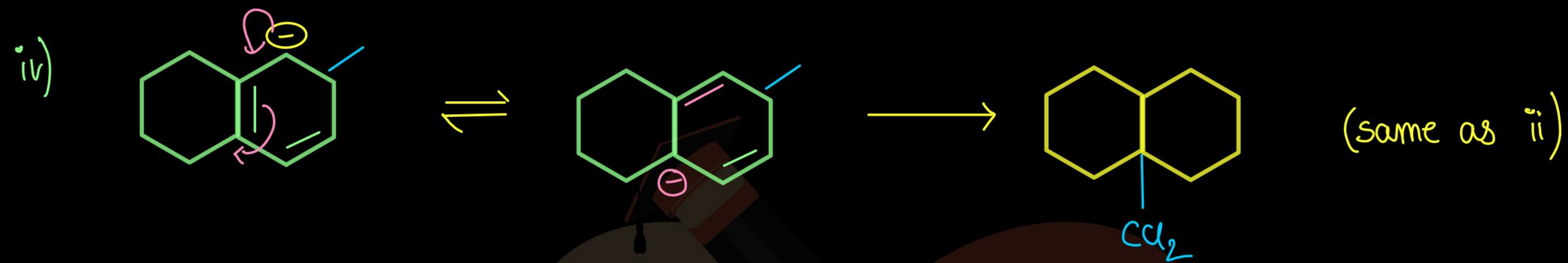
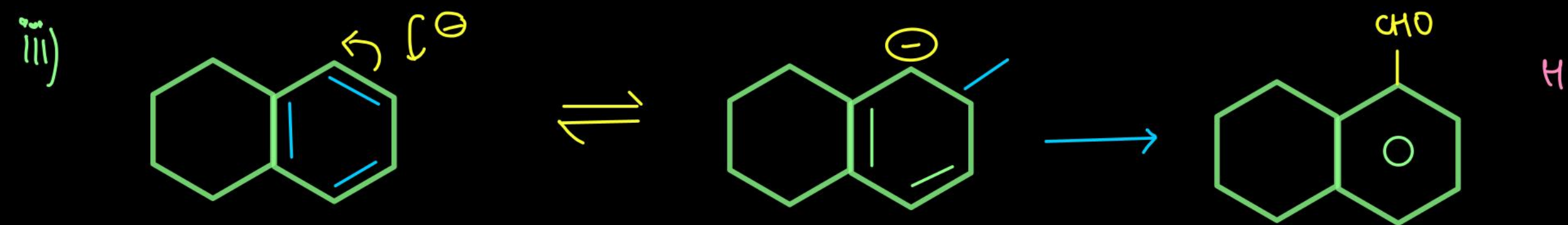


Normal product:

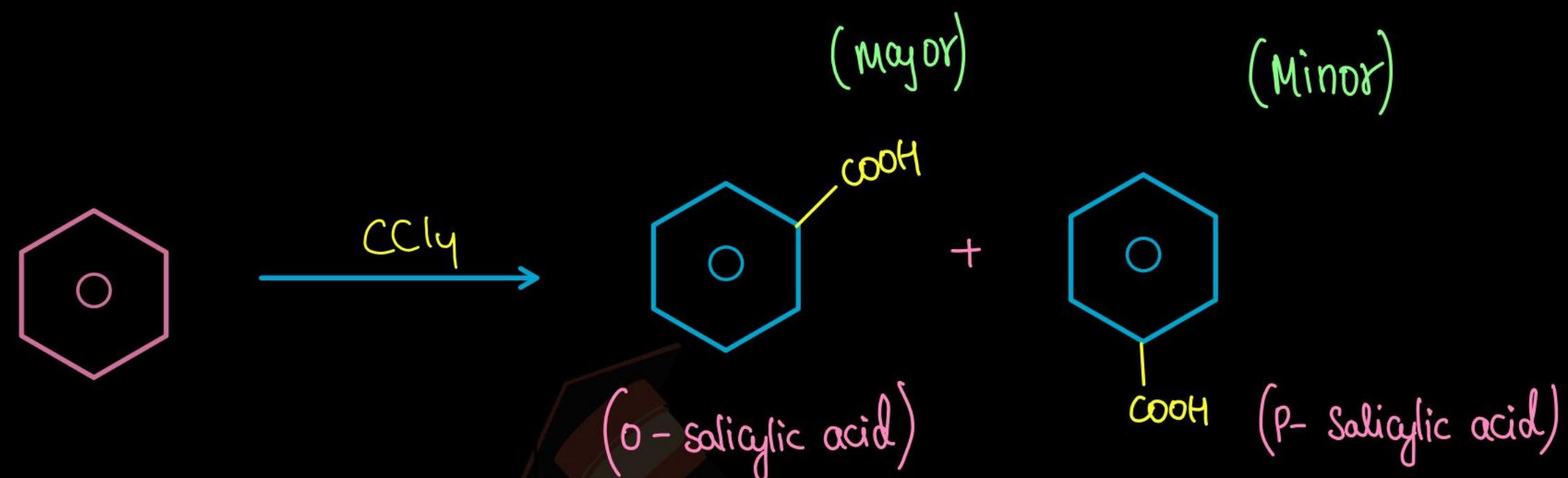




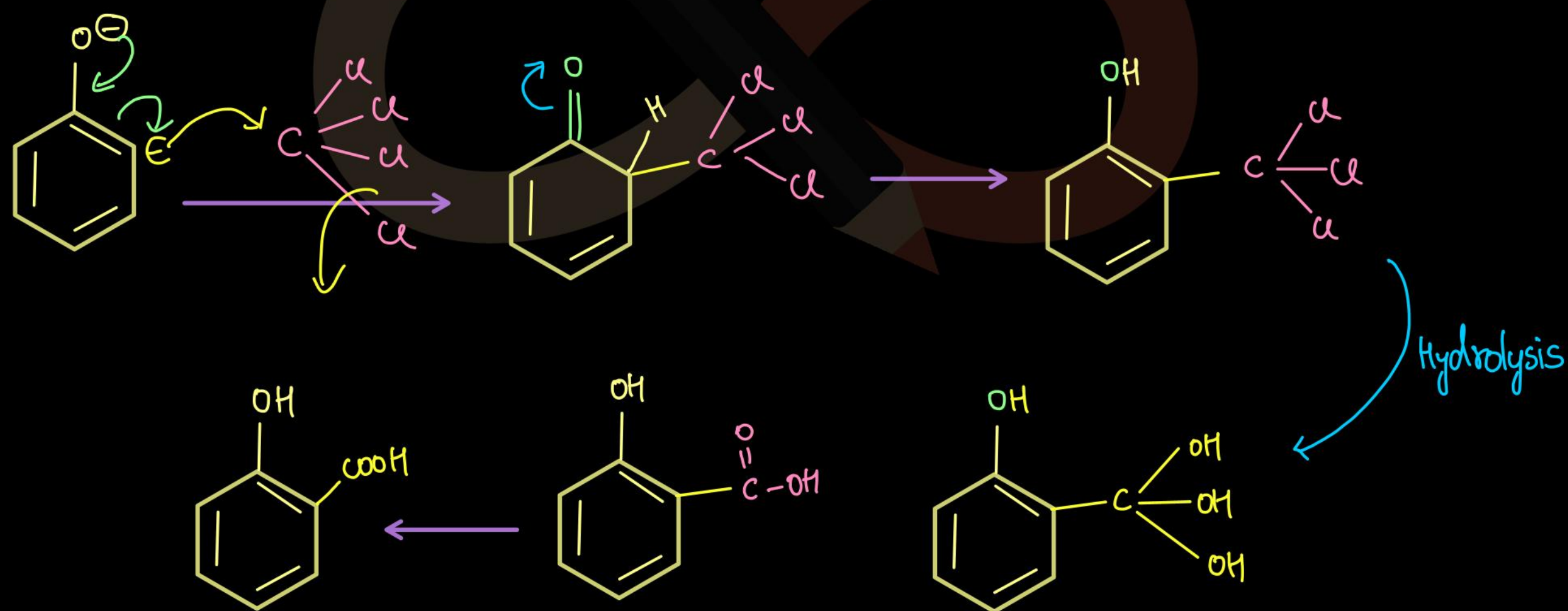




* Riemer-Tiemann with CCl_4 :



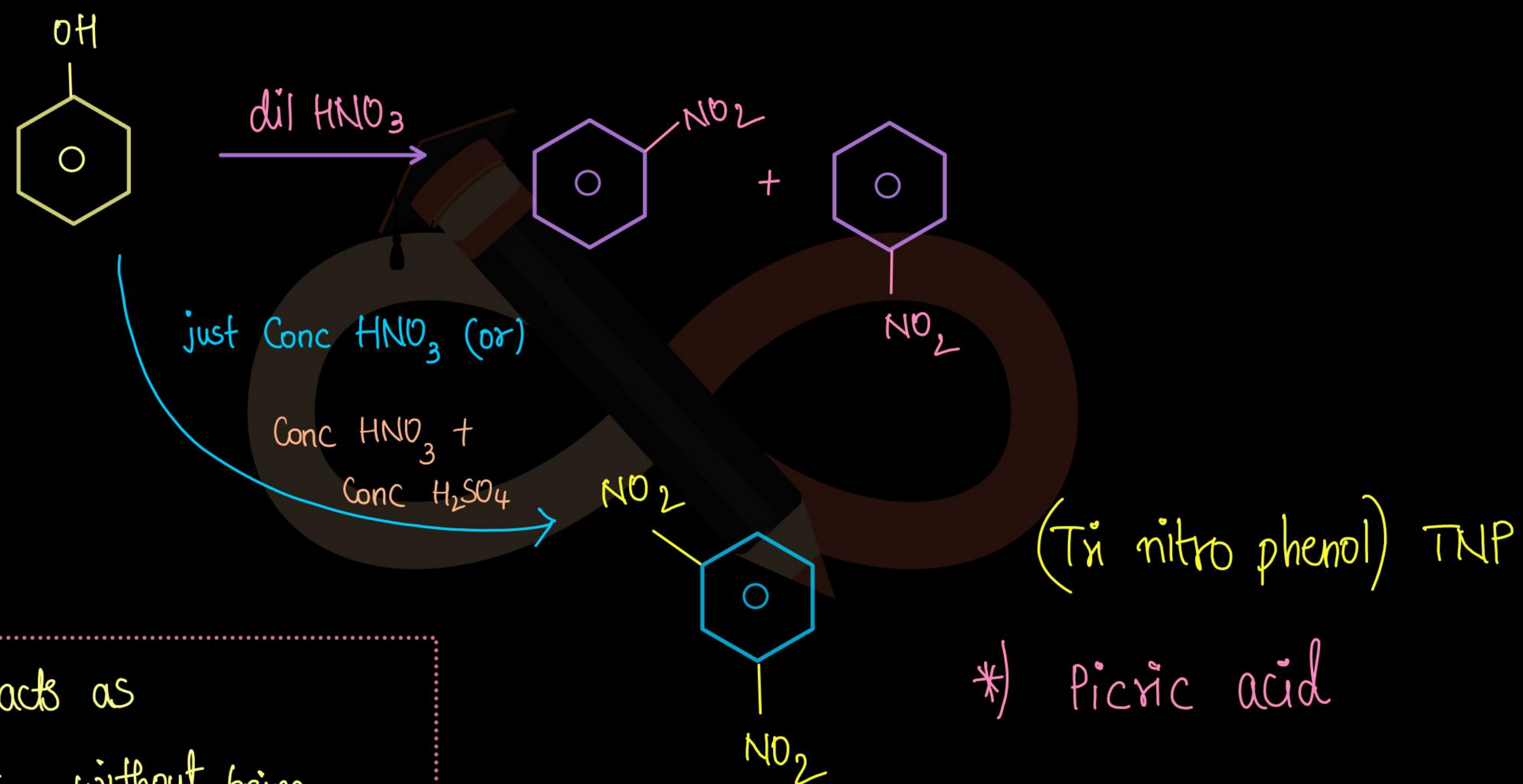
Mech:-



Properties :-

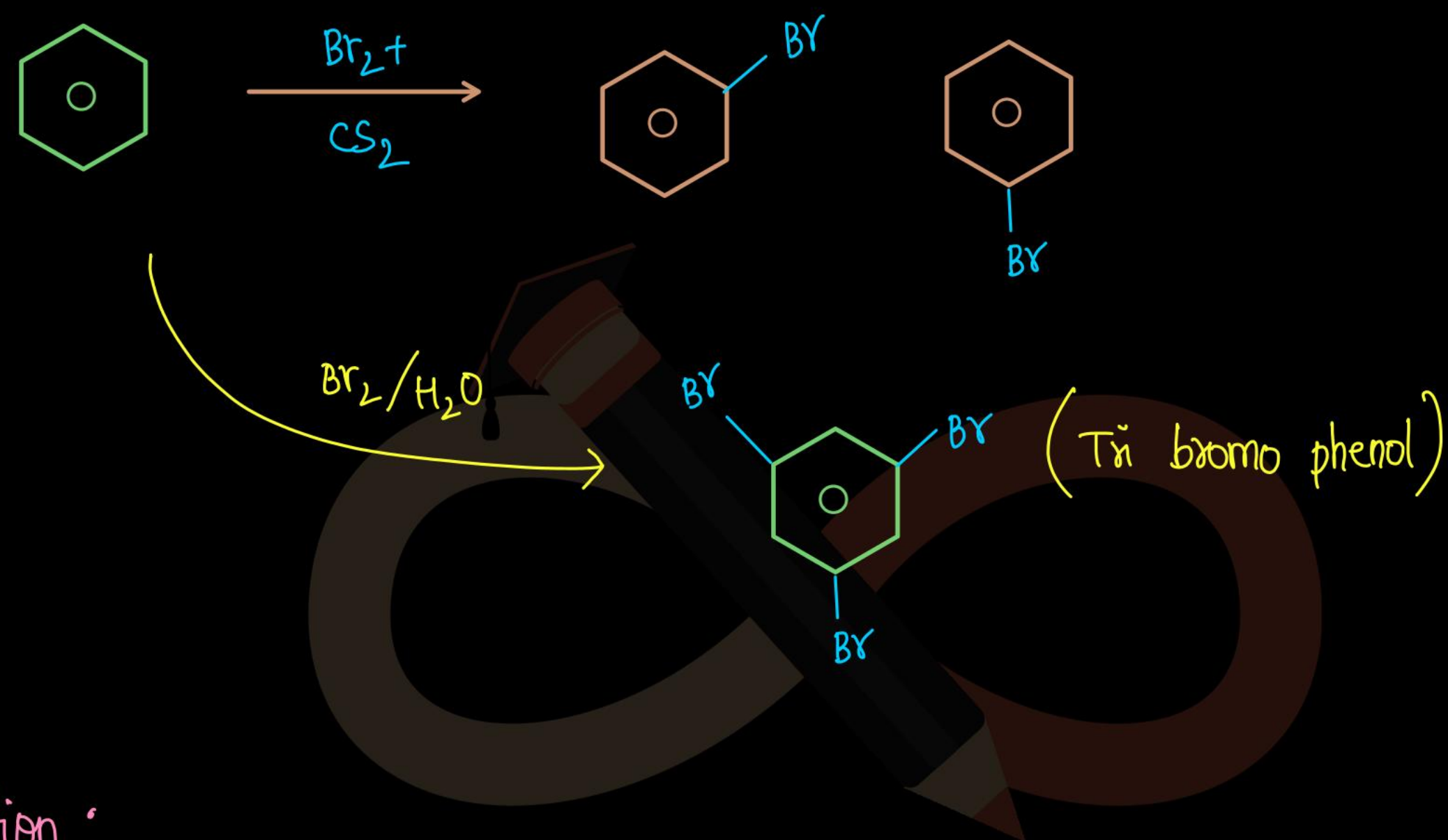
⑤ EAS :

i) Nitration

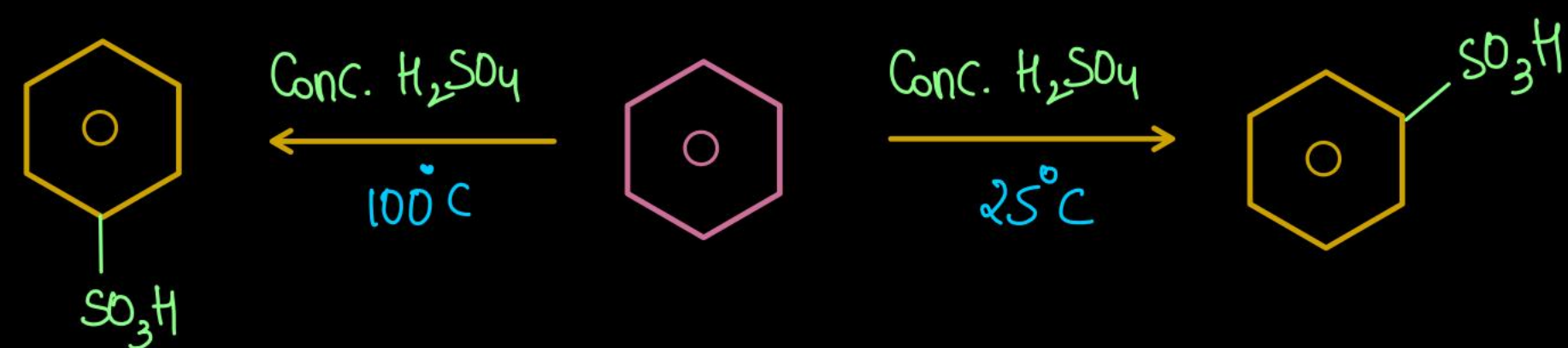


Since $-\text{OH}$ acts as
very good $+I$, without being
Excess it activates the ring strongly

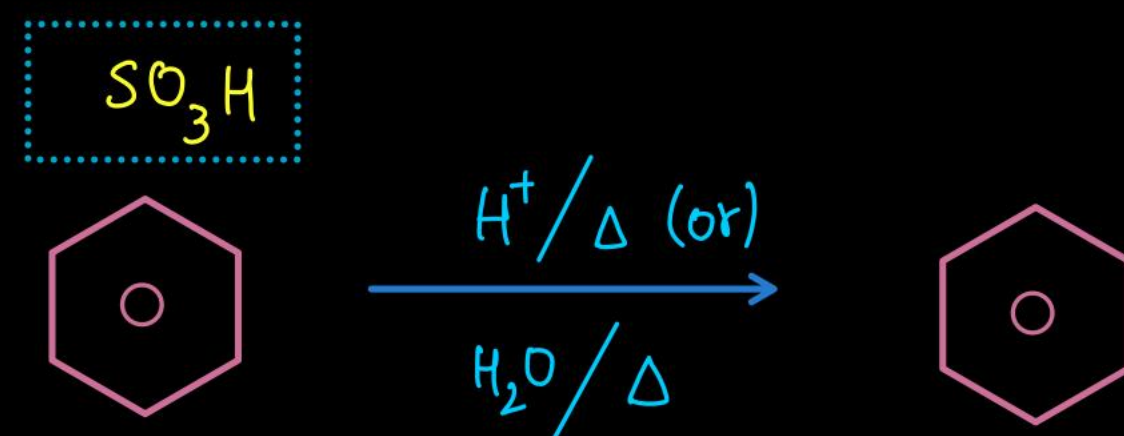
② Halogenation :



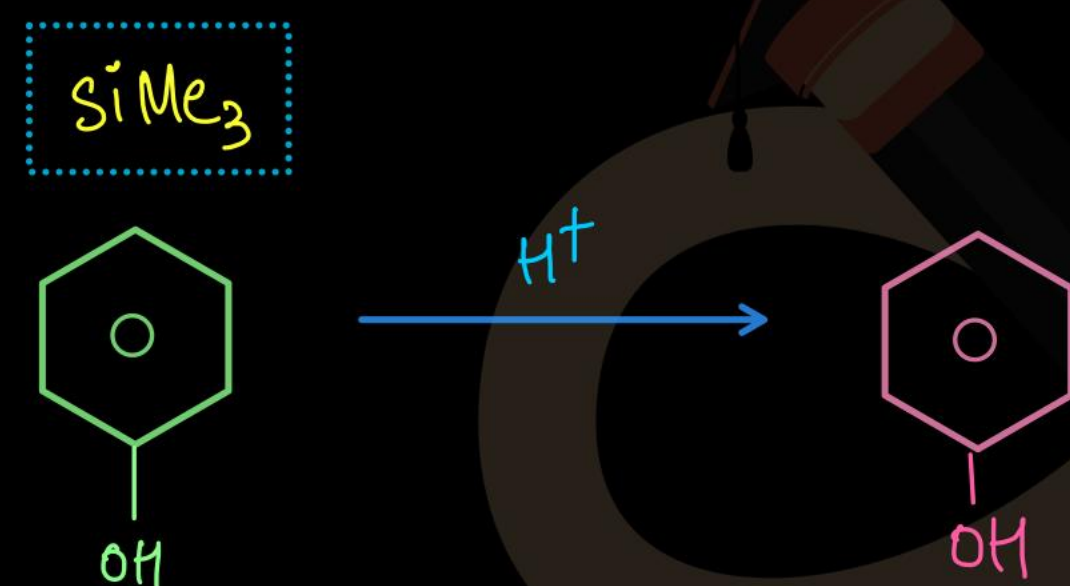
③ Sulphonation :



Desulphonation :

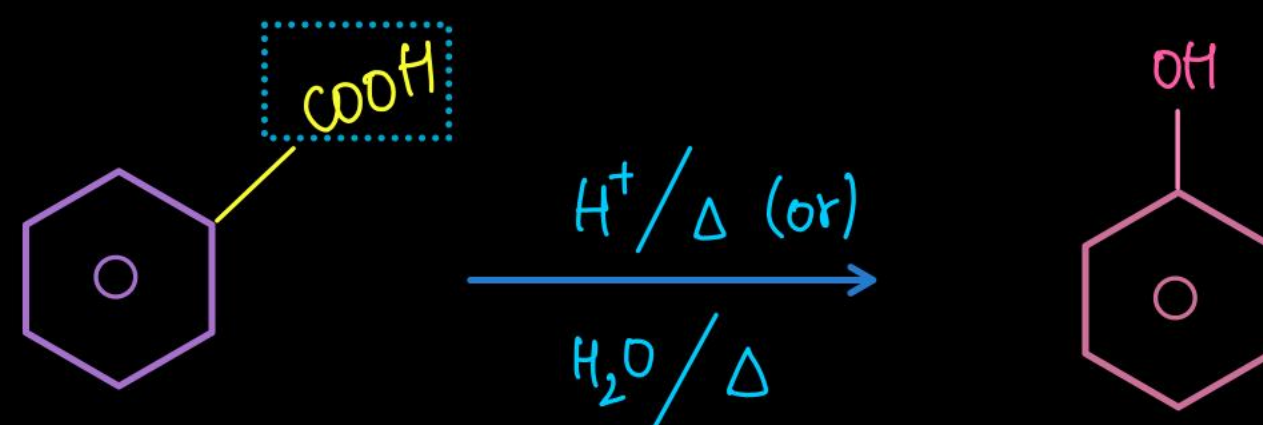


Desilylation :



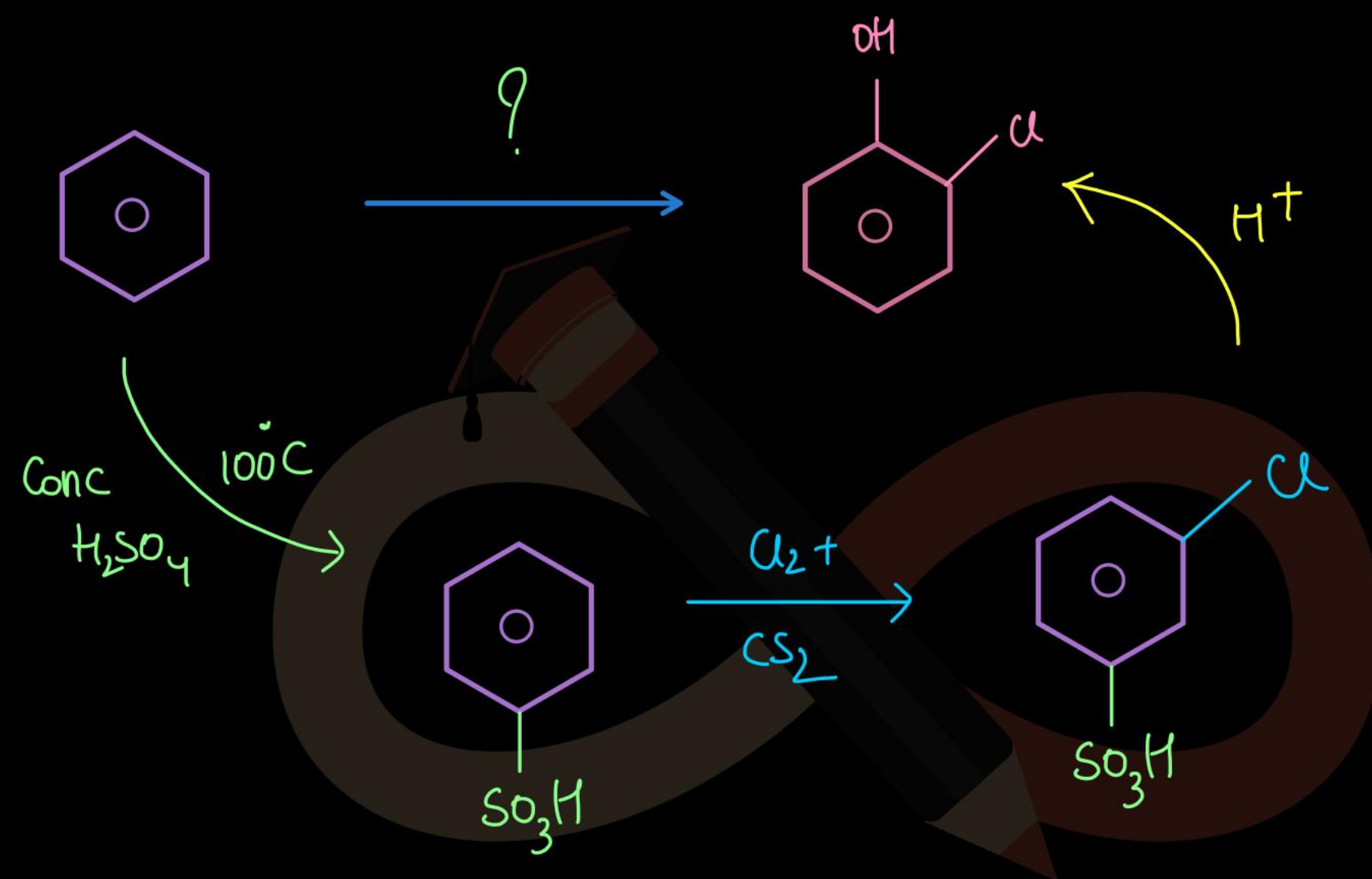
* All 3 are done by
IpSO mechanism

Decarboxylation :-



Note :-

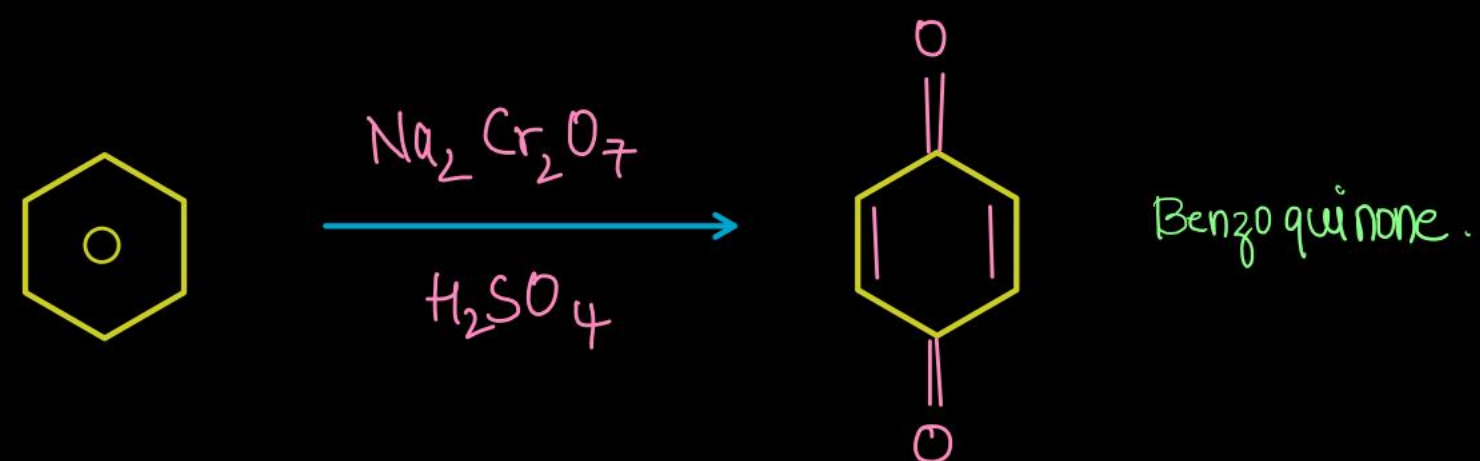
*) Protection of site by sulphonation & desulphonation



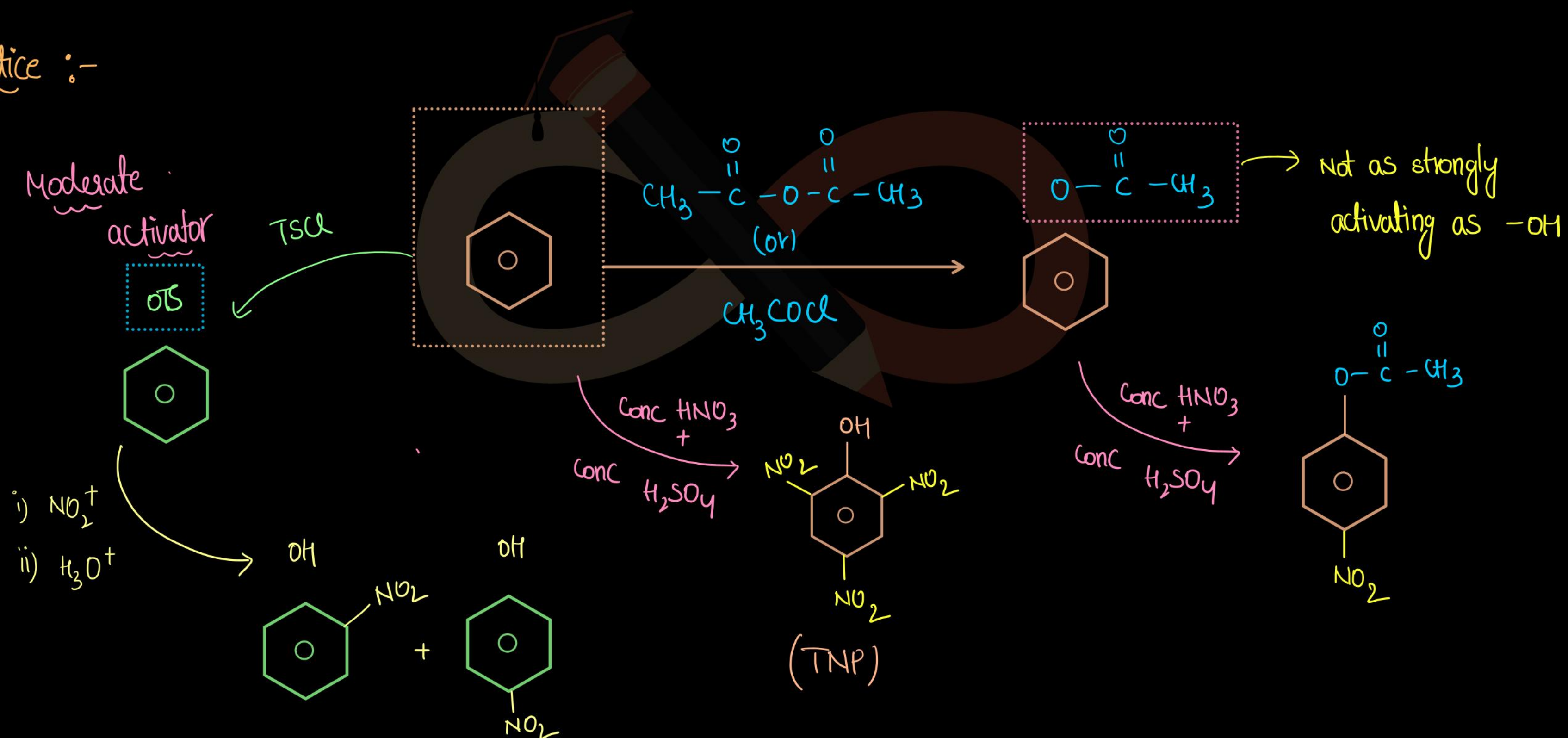
⑥ Rxn with Zn

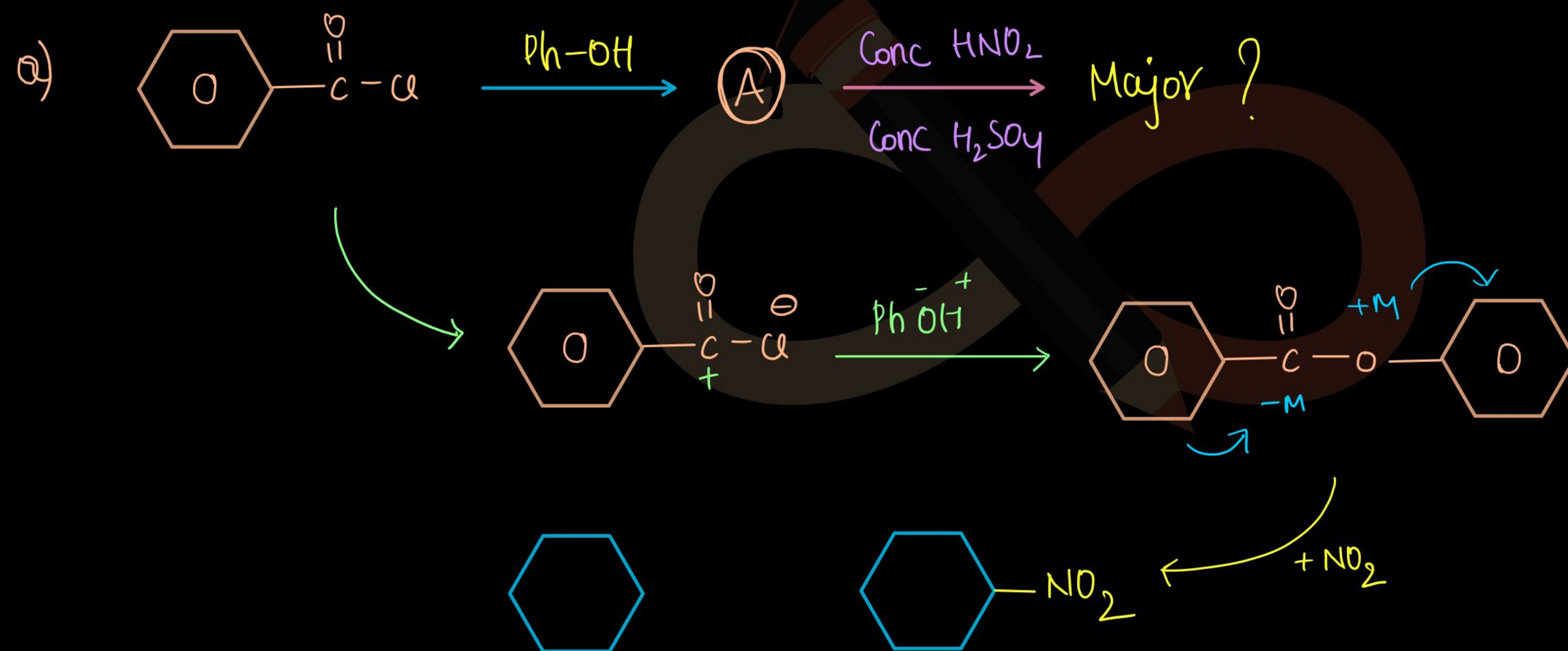
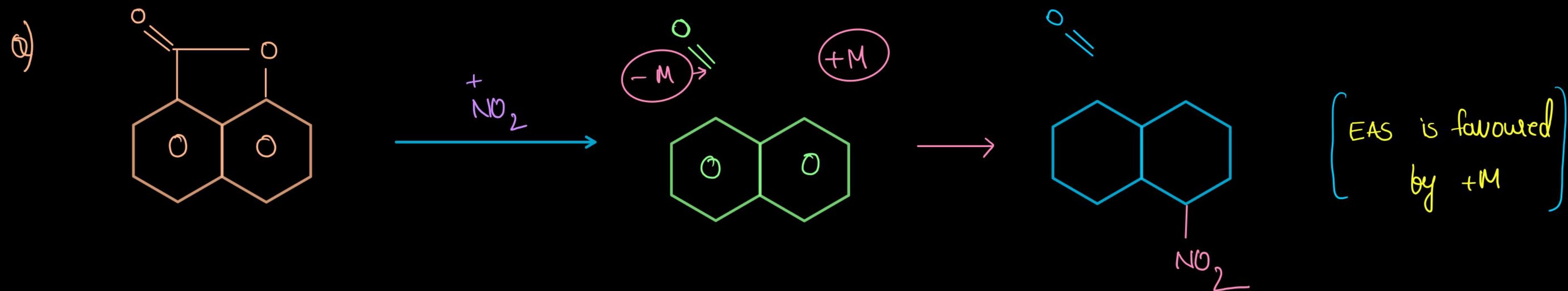


⑦ Oxidation

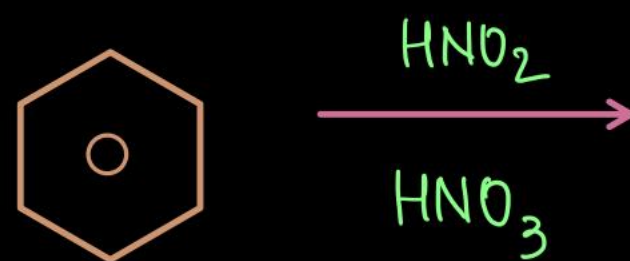


Practice :-

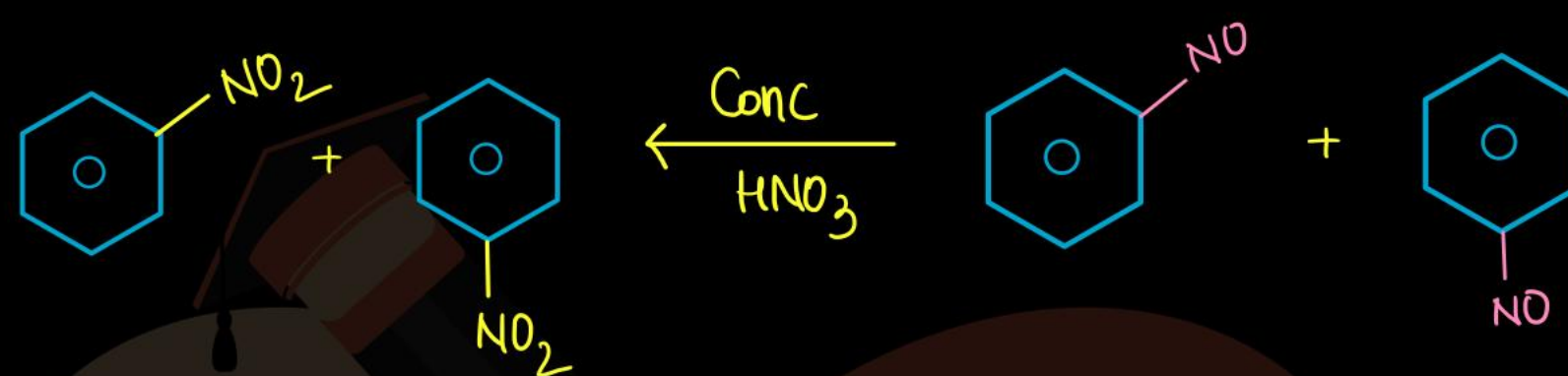
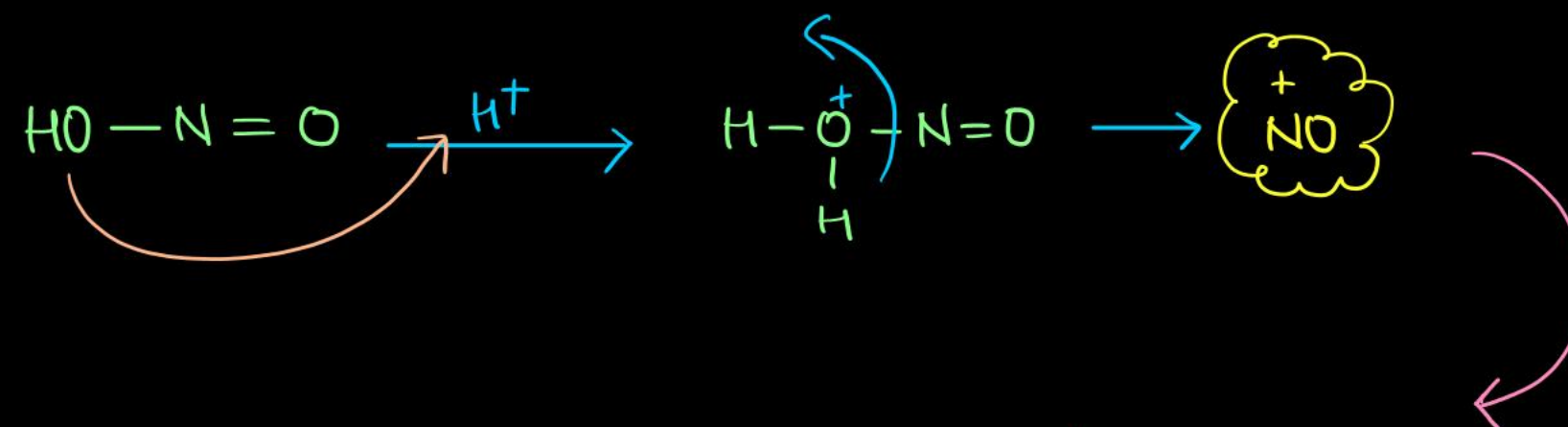




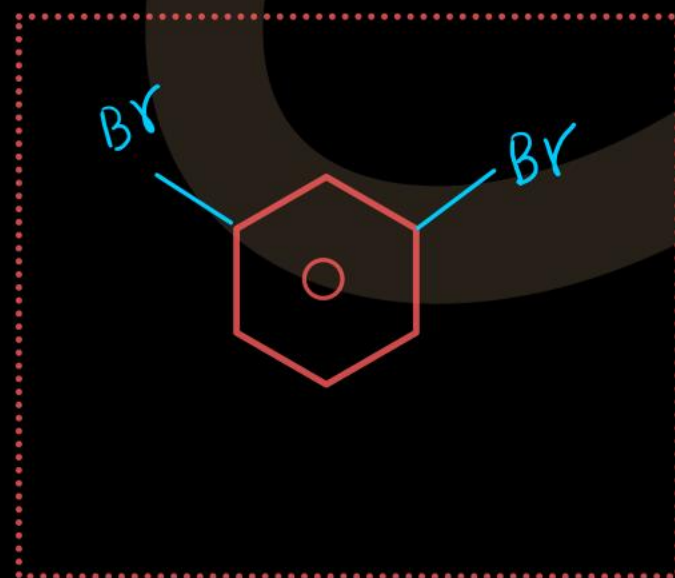
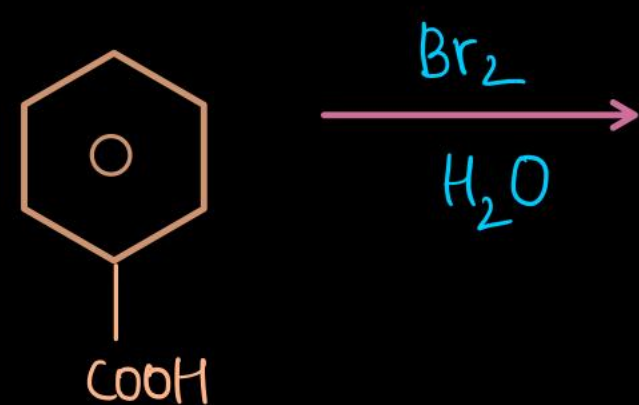
* a)



* Nitrosation

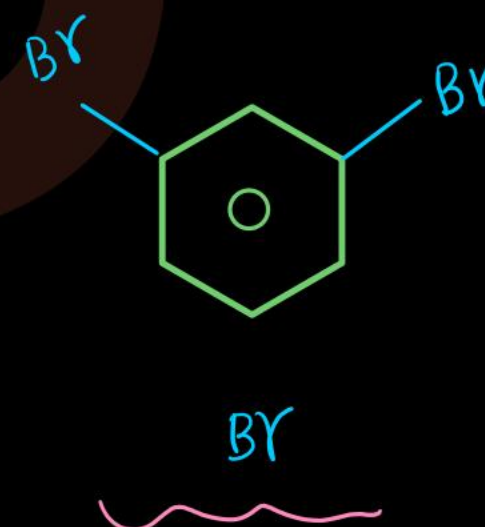


* a)



Wrong

Correct :

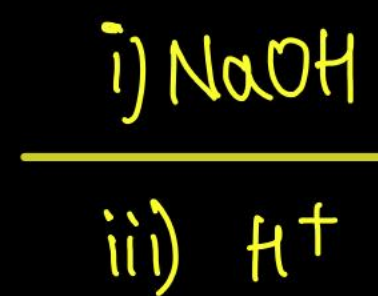


decarboxylation takes place
due to presence of H_2O

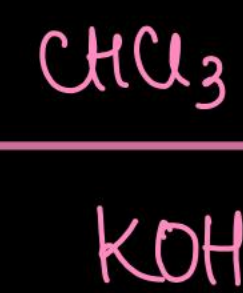
Q)



A



B



C
(Major)

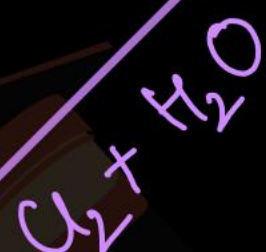
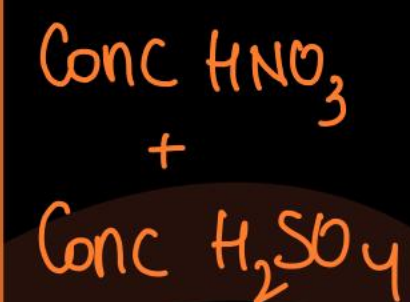
D
(Minor)



G

E

F



Sol:-

